

SEPARATING DRUGS AND METABOLITES

HPLC • UHPLC • PREP LC • SAMPLE PREP

Table of Contents

Drug and Metabolite Separation Overview	pp.4-14
• Separation Steps.....	pp.4-8
Identify: Chemical Differences	
Relate: Chemical Variance and Selectivity	
Select: Column Selectivity Profile	
• Application Examples	pp.9-14
Polar Compounds	
Mid-Polar Compounds	
Non-Polar Compounds	
Choose the Right Column	pp.15-23
• By Solid Support	pp.15-17
Two Particle Platforms	
Performance Gains	
Core-Shell Silica Portfolio	
Fully Porous-Thermally Modified Silica Portfolio	

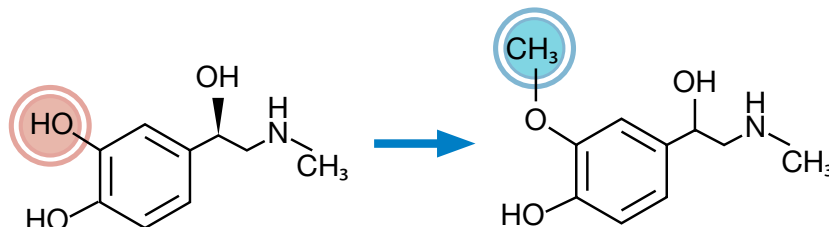
Table of Contents (cont'd)

• By Compound Characteristics	pp.18-23
Hydrocarbon	
Isomers and Isobaric	
Hydroxyl or Amine	
Aromatic or Ring Containing	
Non-ionized Bases and Oxygen or Halogen Containing	
Polar Basic	
Sample Preparation Solutions	pp.24-27
Phospholipid Removal	
Supported Liquid Extraction (SLE)	
Solid Phase Extraction (SPE)	
Column Protection	pp.28-29
Laboratory Protection	pp.30-31
System Protection	pp.32-33
Ordering Information	pp.34-37

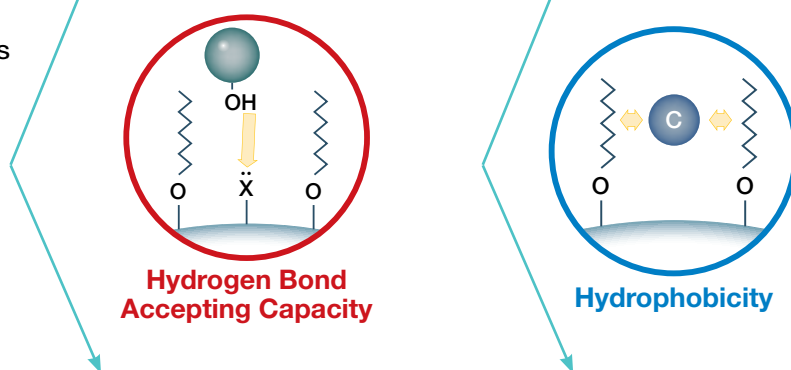
Stationary Phase Selection Process for your Drug Compounds

Effective separation of closely related analytes of interest can be a difficult task to achieve. A helpful strategy for effective HPLC/UHPLC column selection is to identify the differences in chemical functionality between the analytes of interest, relate the differences into categories, and then select an HPLC/UHPLC stationary phase with the appropriate selectivity profile.

STEP 1 Identify: Determine chemical difference between critical analyte pairs

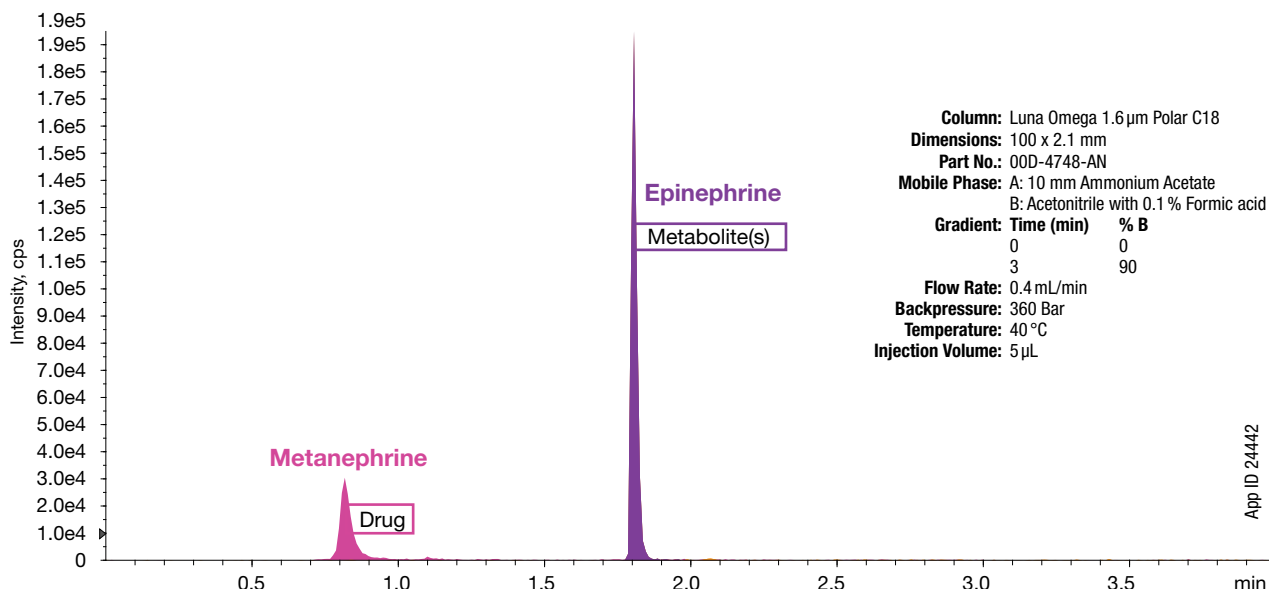
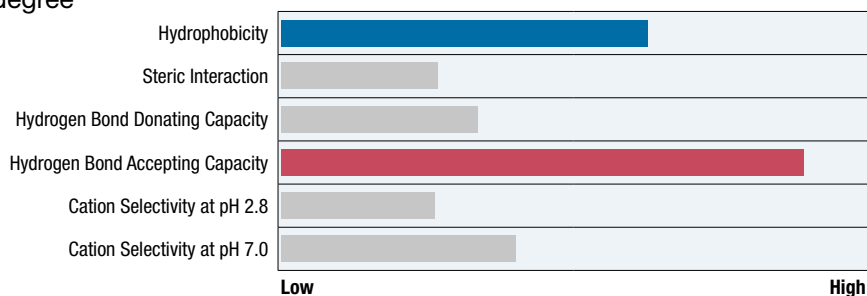


STEP 2 Relate: Correlate the analytes differences to a selectivity category



STEP 3 Select: Choose the column phase with the highest degree of selectivity for related categories

Luna™ Omega Polar C18

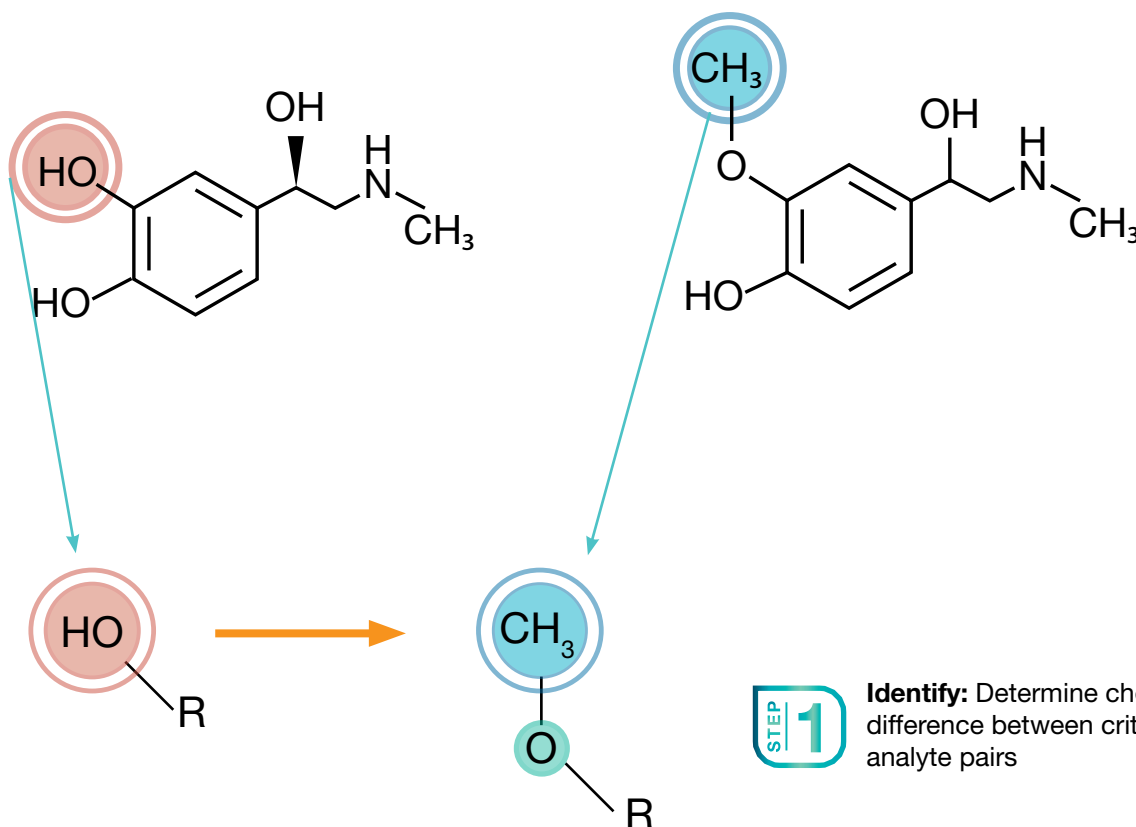


App ID 24442

STEP 1

Identify the Chemical Difference

The first step in selecting the best stationary phase for a given separation is identification of the chemical difference(s) between the analytes of interest. By determining how the compounds differ in hydrophobicity, conformation, hydrogen bond capability, or cation groups, a stationary phase with relevant selectivity can be chosen.



2° alcohol is metabolized to an ether

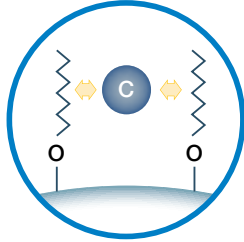
Need help starting with your drugs and metabolites?
Chat our LIVE technical experts for answers!

www.phenomenex.com/chat

STEP 2

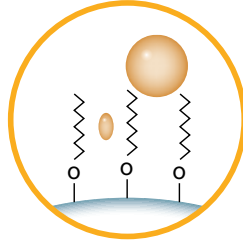
Relate Chemical Difference to Type of Interaction

After identifying the chemical difference(s), we can now categorize them by interaction type. This information provides us with the properties of the ideal HPLC/UHPLC stationary phase needed to achieve a successful separation of these analytes.



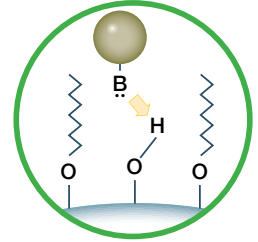
Hydrophobicity

The ability of a phase to hydrophobically interact with carbon groups



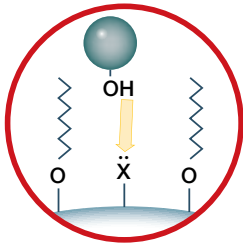
Steric Interaction

The ability of a phase to separate compounds based on structural differences



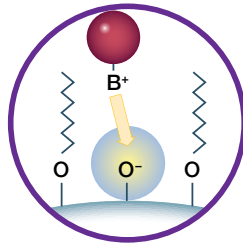
Hydrogen Bond Donating Capacity

The ability of a phase to hydrogen bond with proton accepting groups



Hydrogen Bond Accepting Capacity

The ability of a phase to hydrogen bond with proton donating groups



Cation Selectivity at pH 2.8

The ability of a phase to interact with cation groups at acidic pH

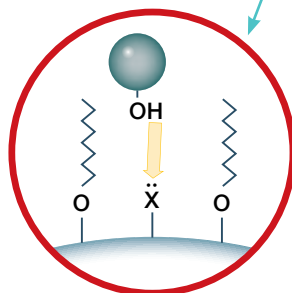
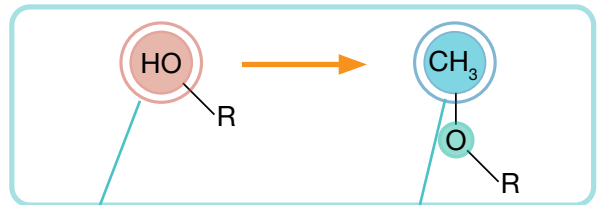
Cation Selectivity at pH 7.0

The ability of a phase to interact with cation groups at neutral pH

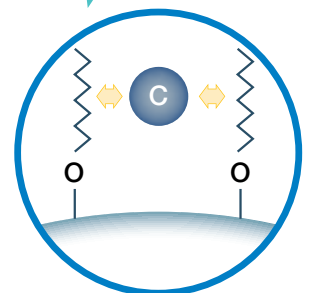
STEP 2

Relate: Correlate differences between analytes to selectivity category

- ✗ Loss of potential hydrogen bonding group
- ✓ Increase in hydrophobicity



Hydrogen Bond Accepting Capacity

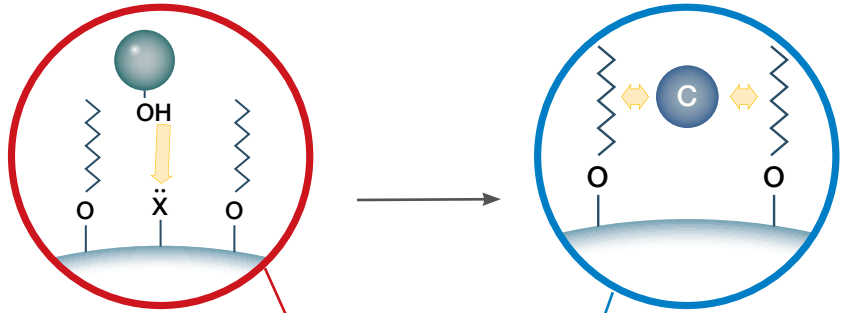


Hydrophobicity

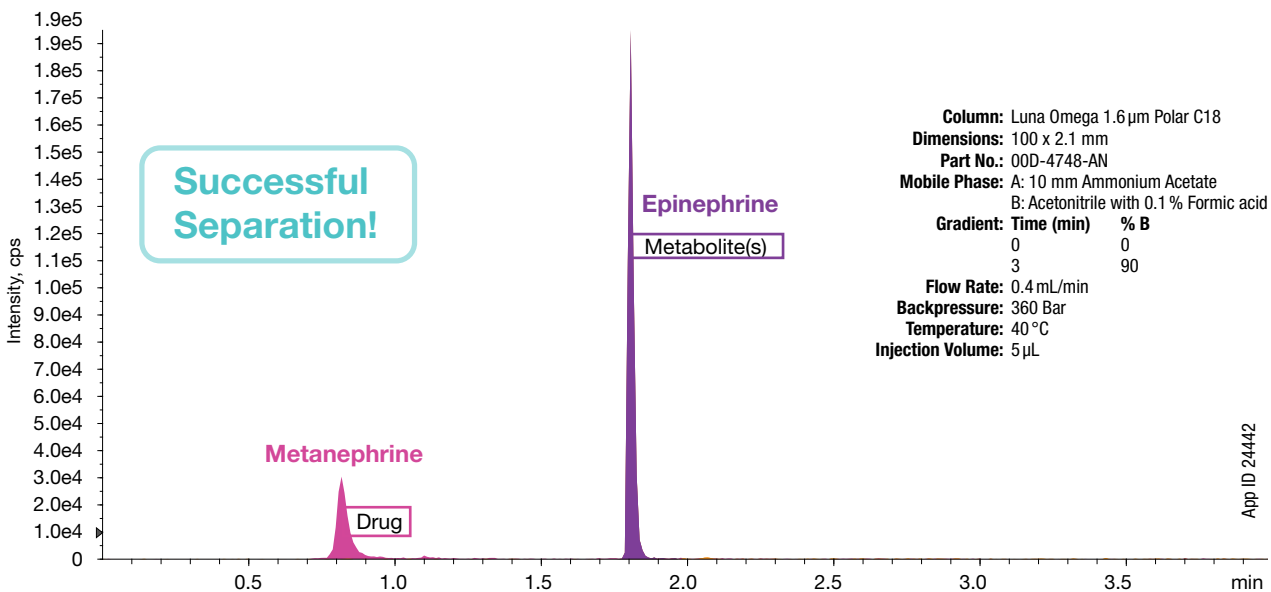
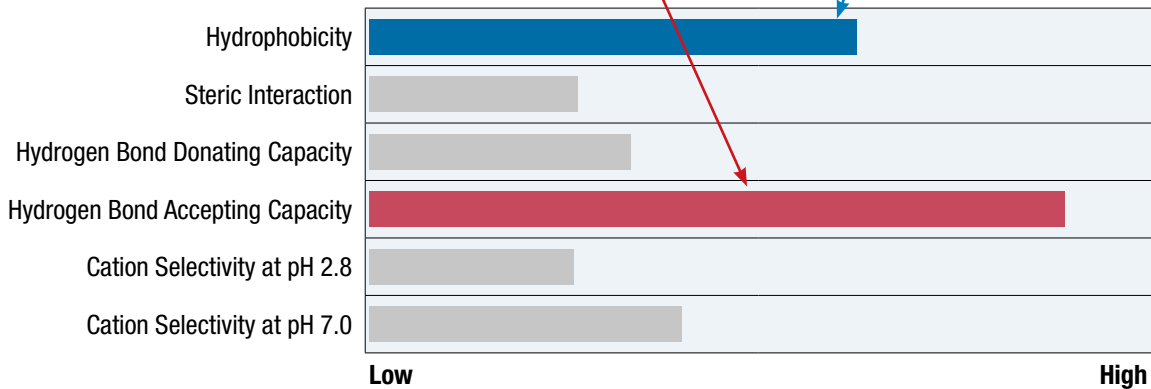
STEP 3

Select a Column Selectivity Profile

Once the ideal HPLC/UHPLC stationary phase properties to achieve your separation has been established, the information found in this guide can be utilized to identify column stationary phases with the most appropriate selectivity properties. By selecting a column with a high degree of selectivity for the correlated interaction, it will greatly improve the separation success rate.



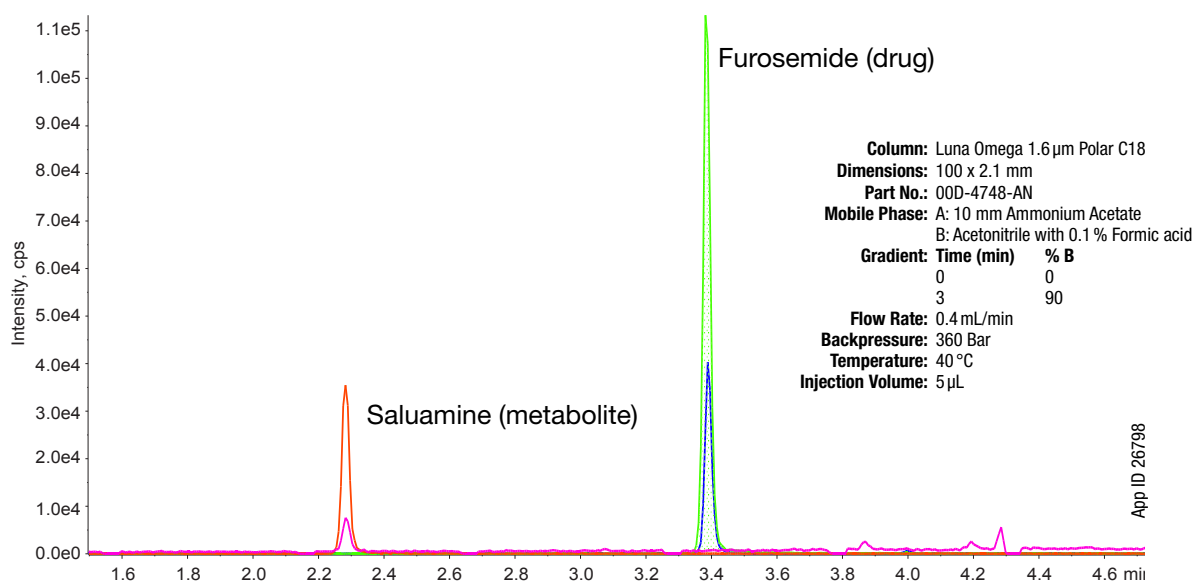
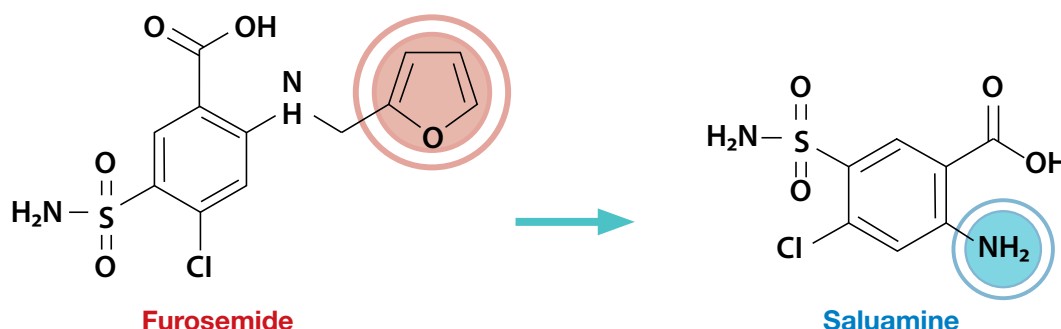
Luna™ Omega Polar C18 Selectivity Profile



Select a Column Selectivity Profile

- STEP 1 Identify:** Determine chemical difference between critical analyte pairs
- STEP 2 Relate:** Correlate the analytes differences to a selectivity category
- STEP 3 Select:** Choose the column phase with the highest degree of selectivity for related categories

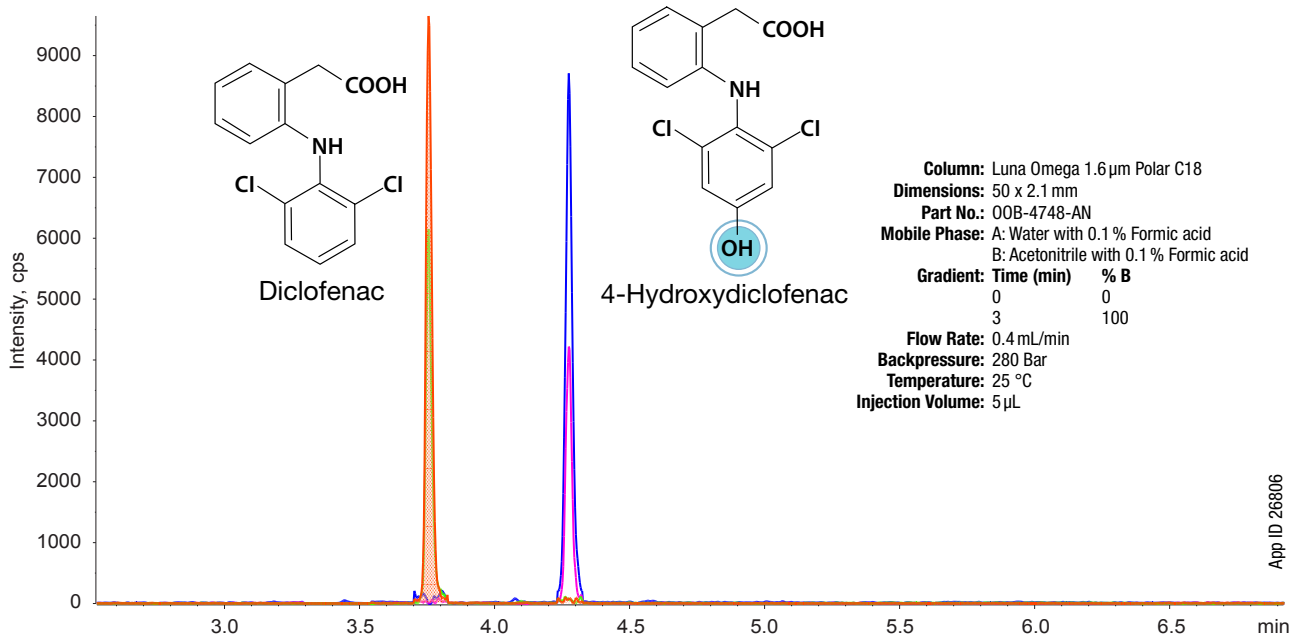
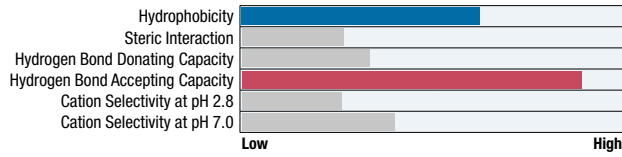
Luna™ Omega Polar C18 Selectivity Profile



App ID 26798

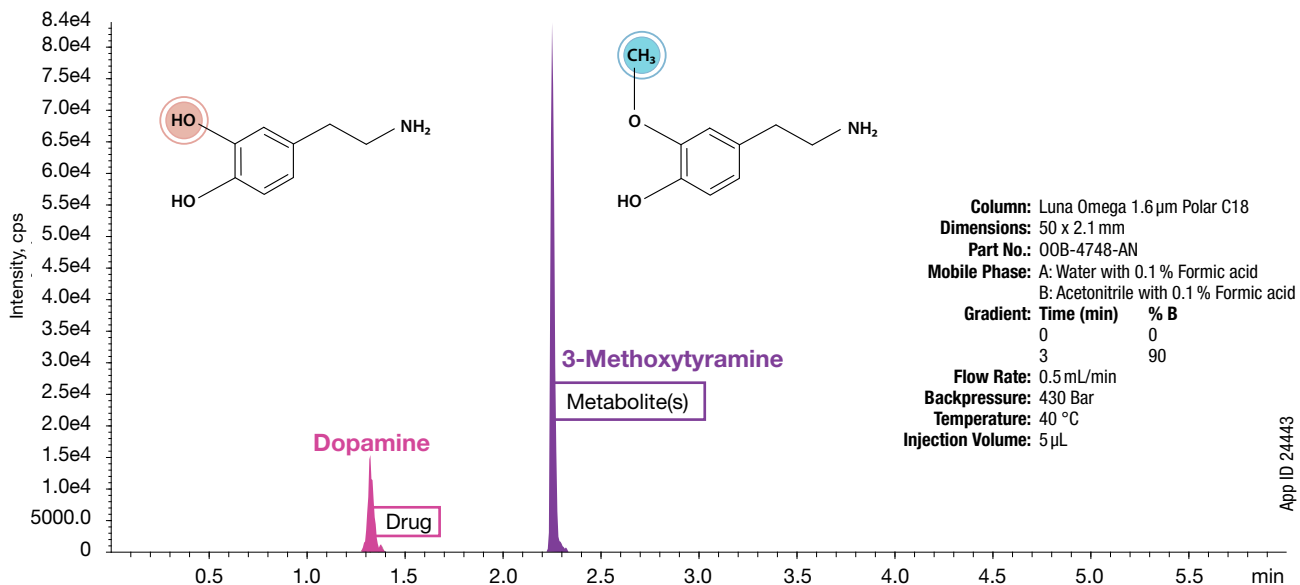
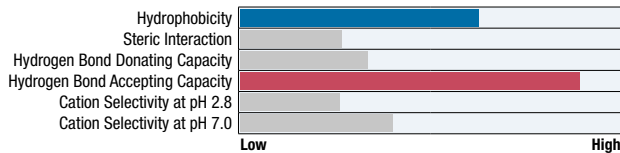
Polar Compounds

Luna™ Omega 1.6 μm Polar C18



App ID 26806

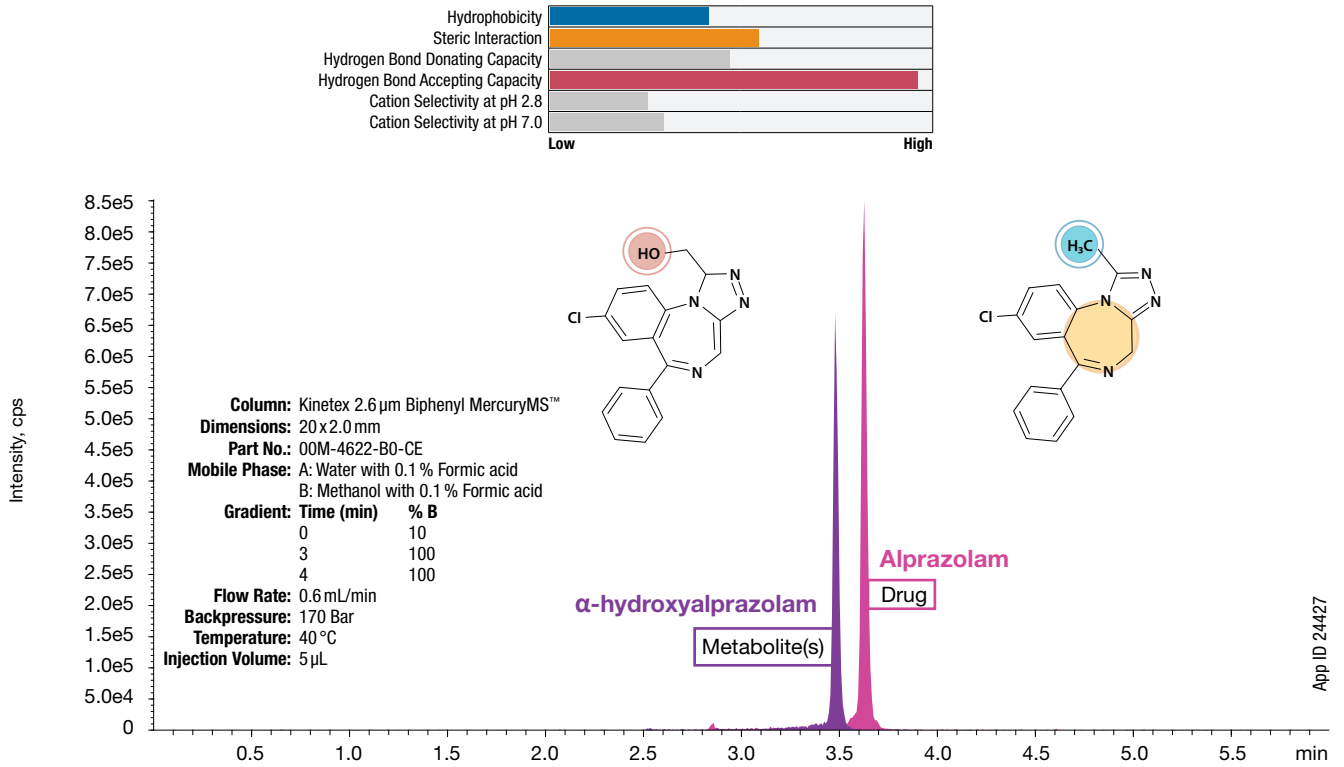
Luna Omega 1.6 μm Polar C18



App ID 24443

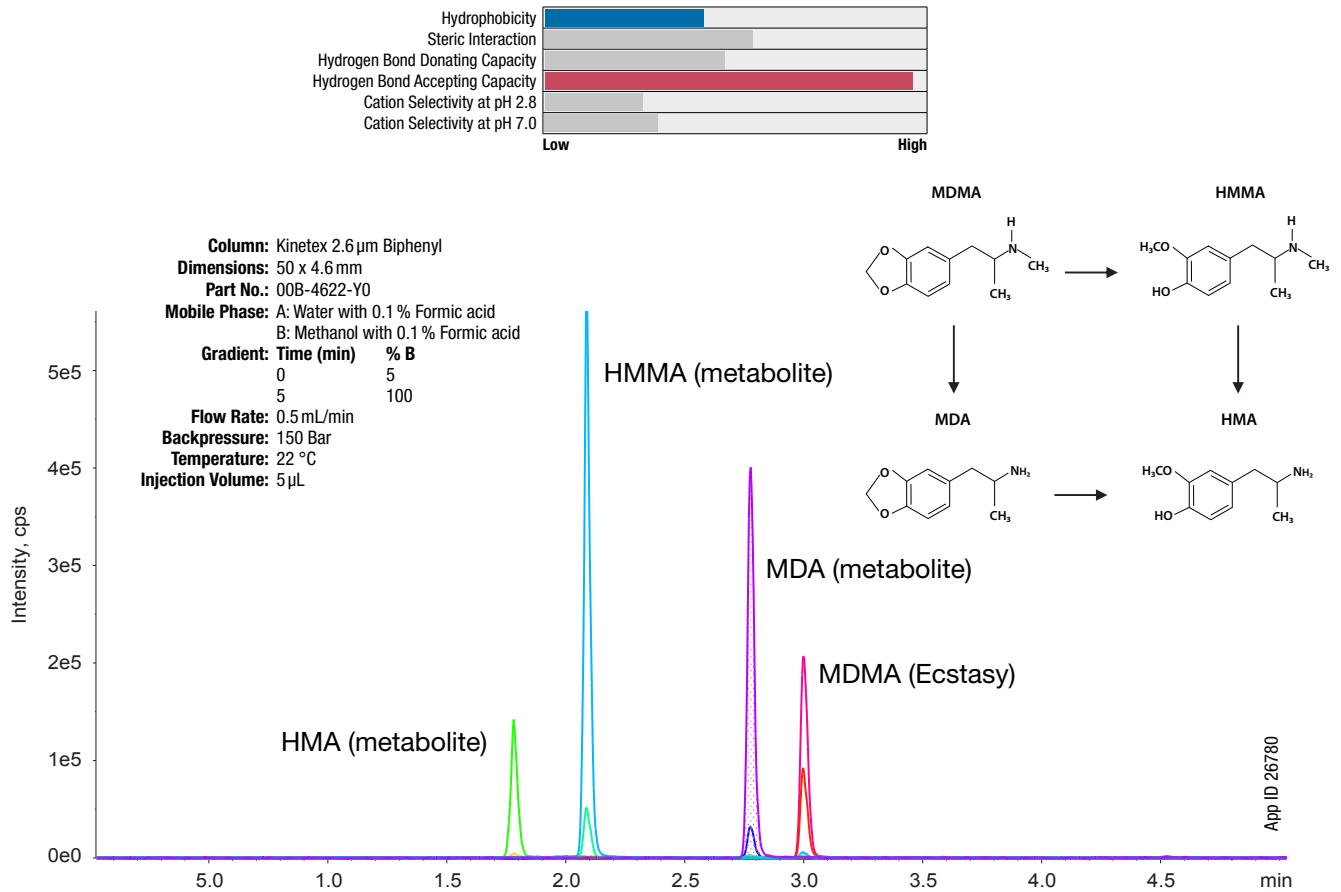
Mid-Polarity Compounds

Kinetex™ 2.6 μm Biphenyl



App ID 24427

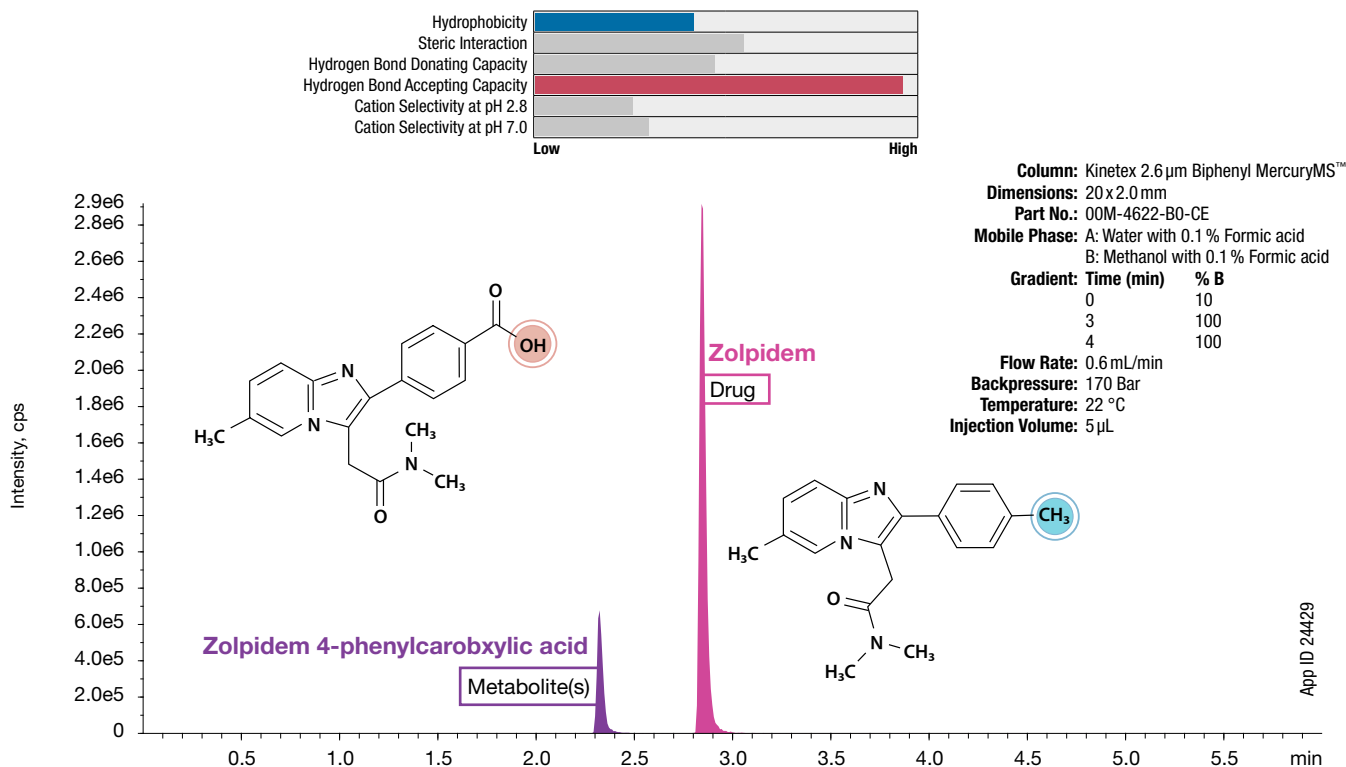
Kinetex 2.6 μm Biphenyl



App ID 26780

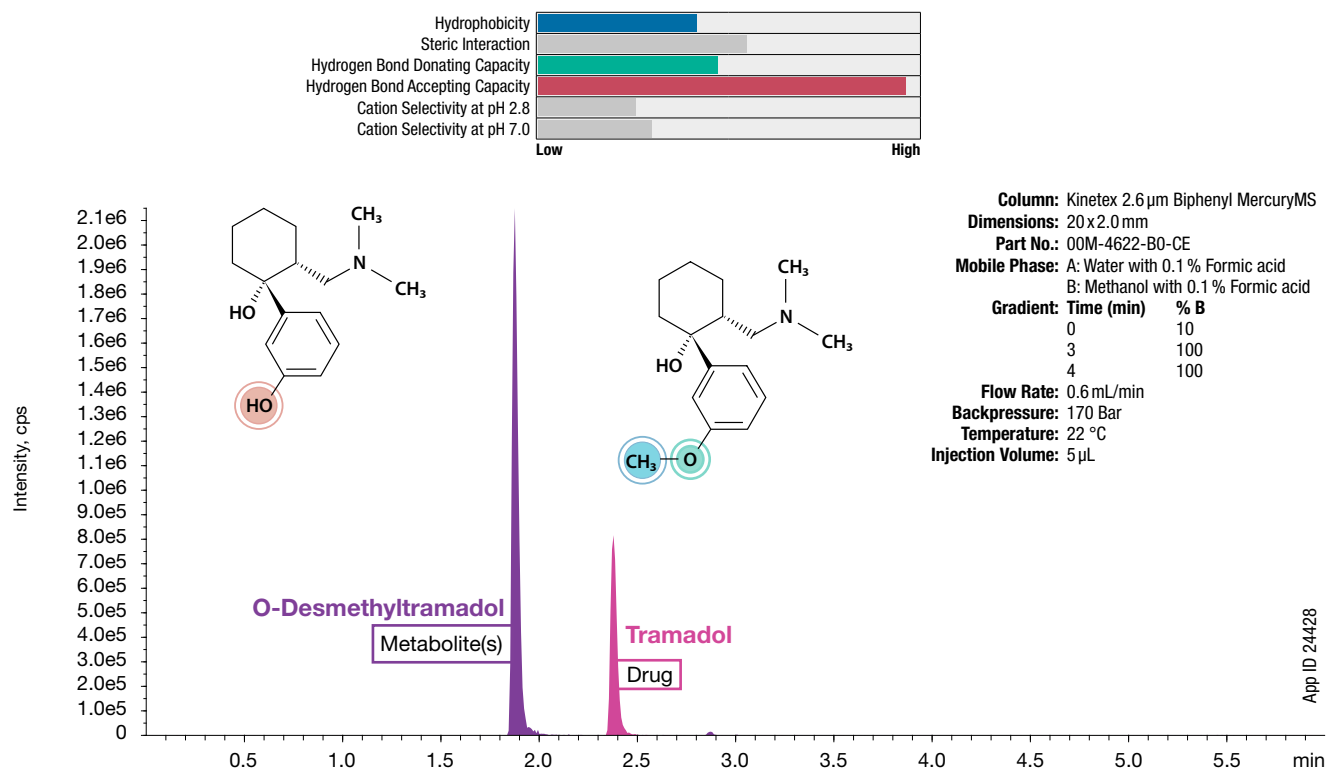
Mid-Polarity Compounds

Kinetex™ 2.6 μm Biphenyl



App ID 24429

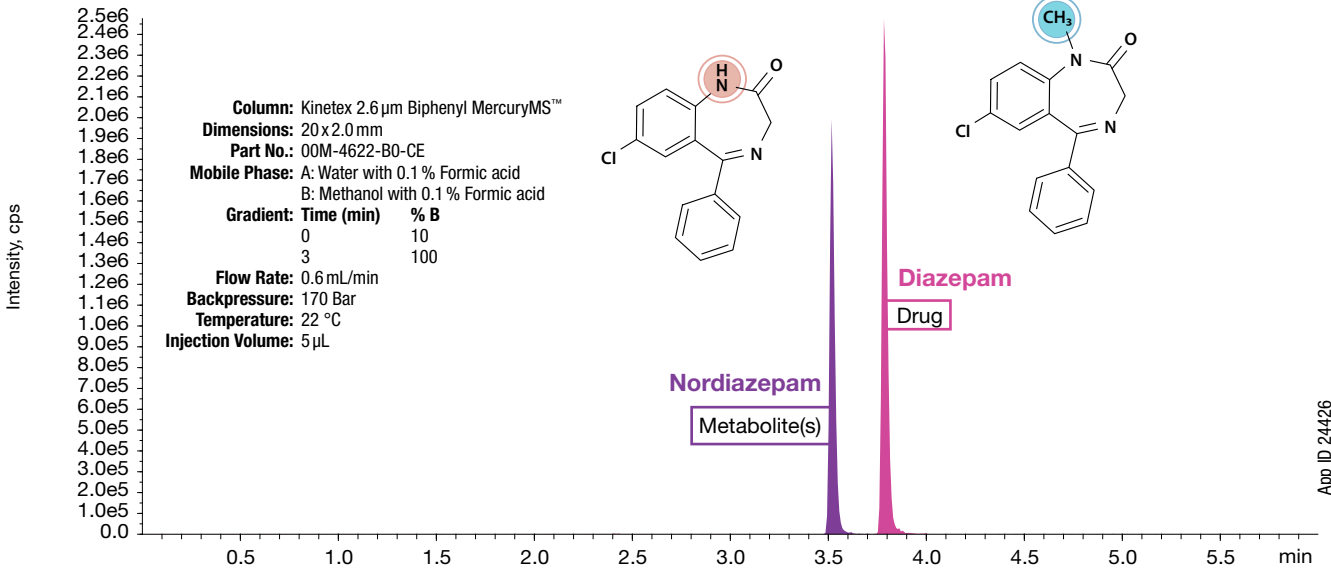
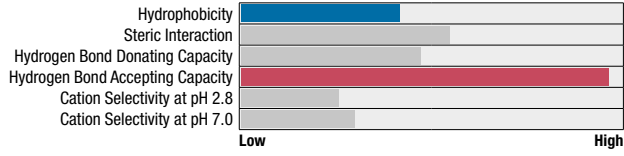
Kinetex 2.6 μm Biphenyl



App ID 24428

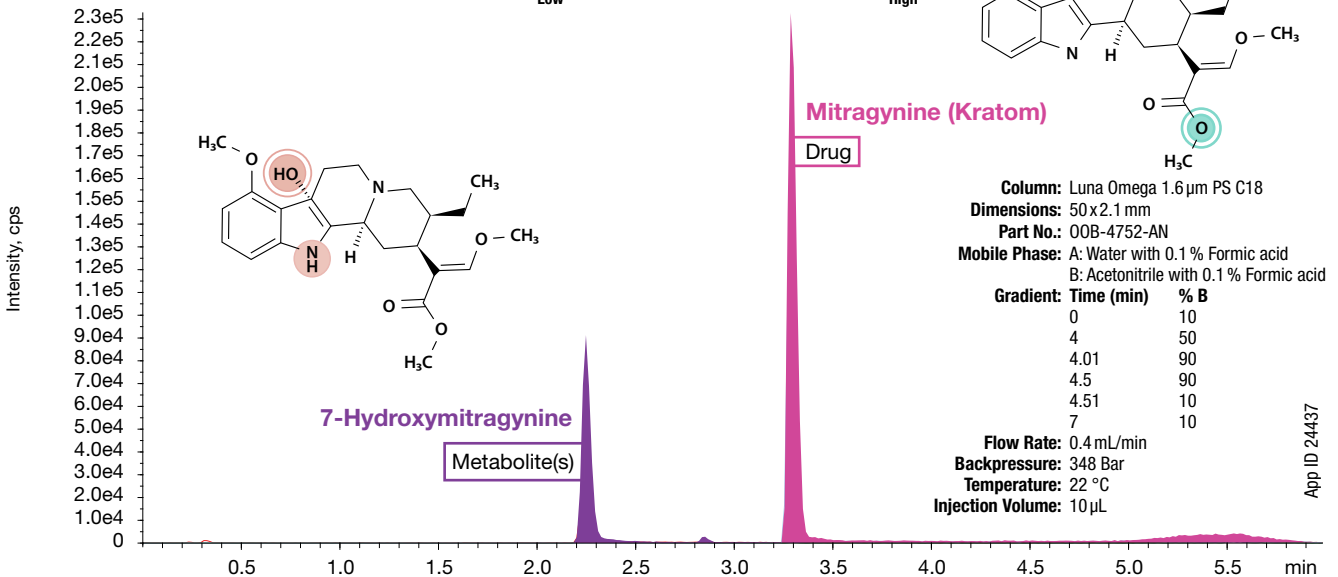
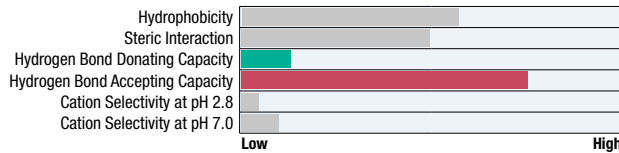
Mid-Polarity Compounds

Kinetex™ 2.6 μm Biphenyl



App ID 24426

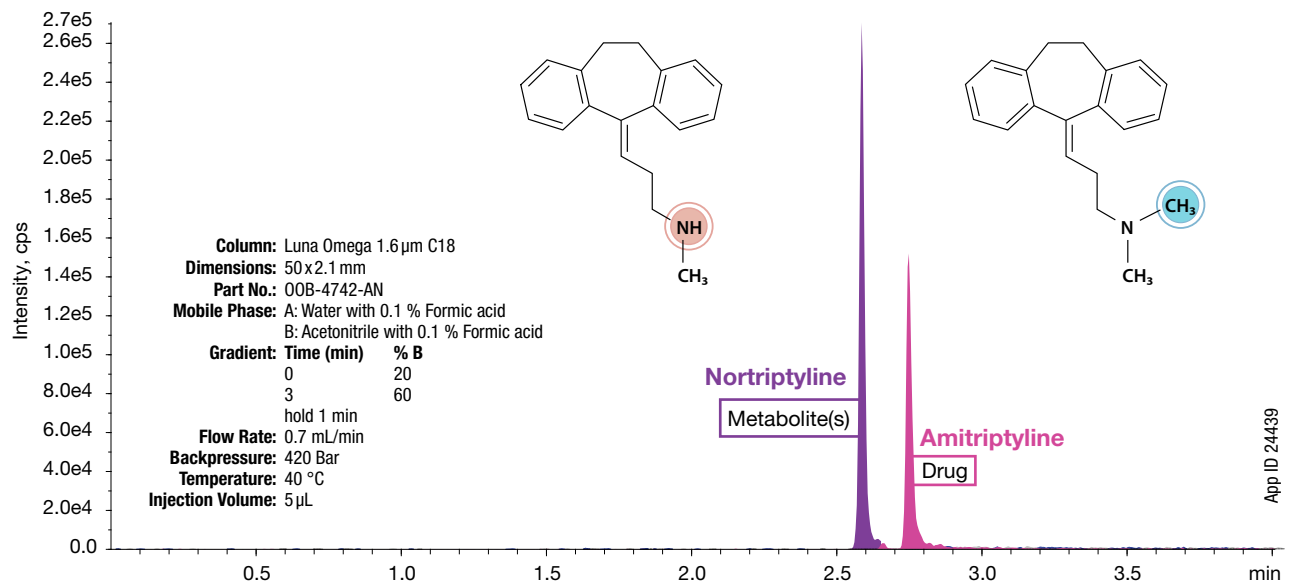
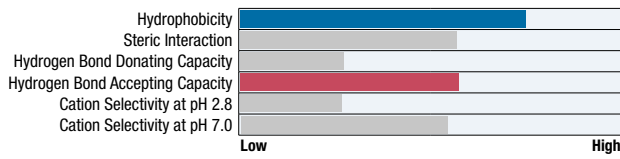
Luna™ Omega 1.6 μm PS C18



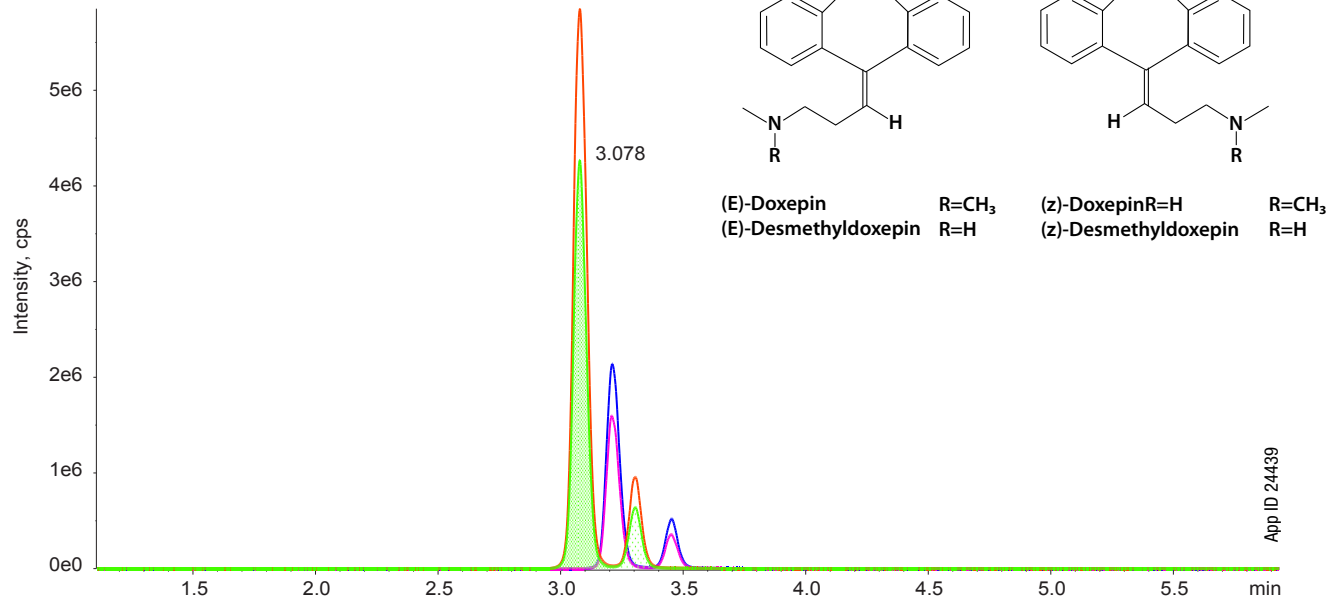
App ID 24437

Non-Polar Compounds

Luna™ Omega 1.6 μm C18



Kinetex™ 2.6 μm Biphenyl



- Doxepin hydrochloride-1
- Doxepin hydrochloride-2
- N-Desmethyldoxepin-1
- N-Desmethyldoxepin-2

Column: Luna Omega 1.6 m C18
Dimensions: 50x2.1 mm
Part No.: OOB-4742-AN
Mobile Phase: A: 0.1 % Formic Acid in Water
 B: Acetonitrile with 0.1 % Formic acid
Gradient:

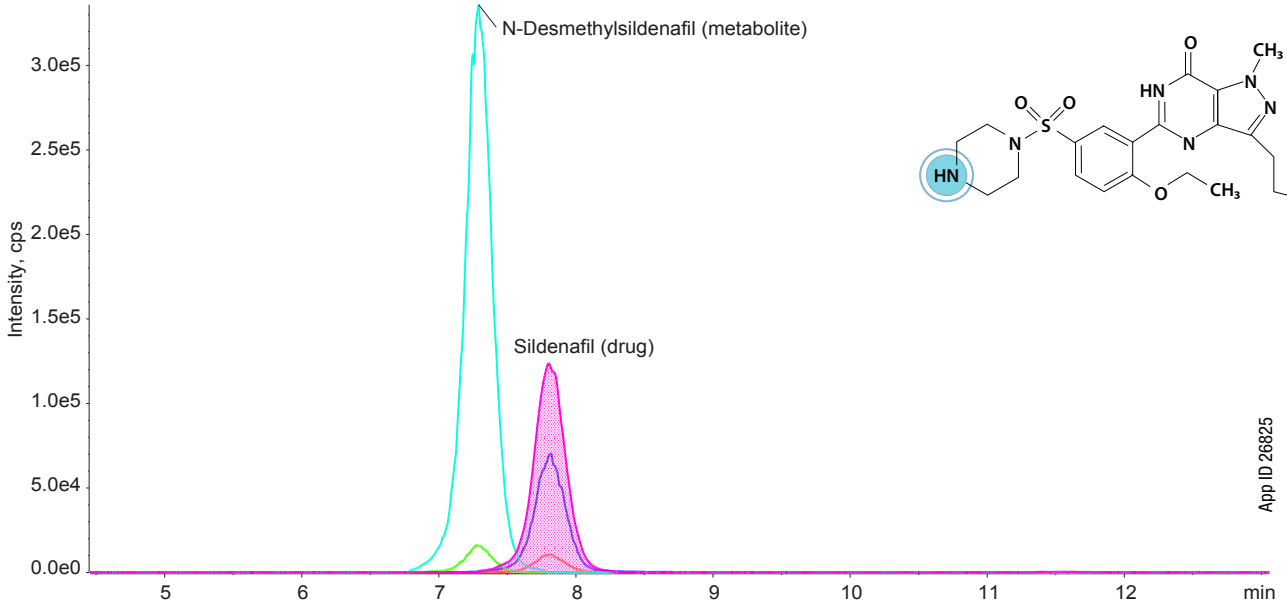
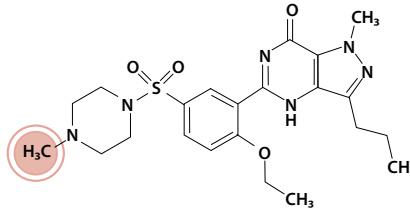
Time (min)	% B
0	406
706	0.1
408	40

Flow Rate: 500 mL/min
Injection Volume: 1 L
Temperature: 40 °C
LC System: Agilent 1200 Series Detection: MS/MS
Detector: SCIEX 4500

Non-Polar Compounds

Kinetex™ 2.6 μm Biphenyl

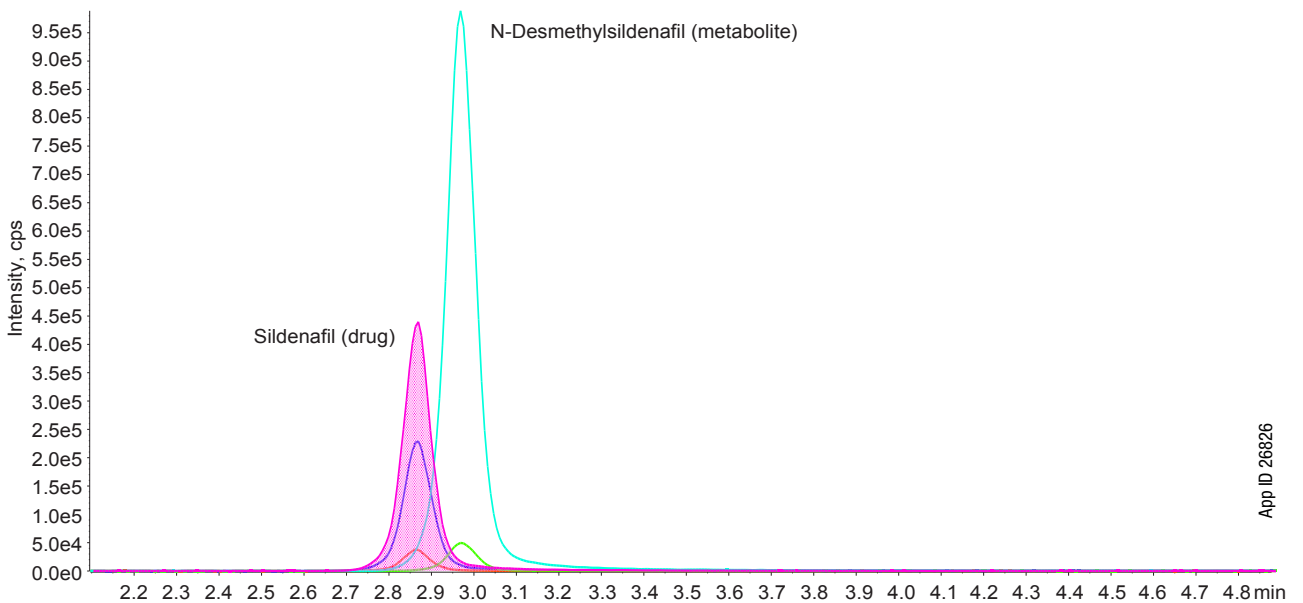
Mobile Phase: A: 0.1 % Formic Acid in Water
 B: 0.1 % Formic Acid in Methanol
Gradient: Time (min) % B
 0 40
 15 40



App ID 26825

Luna™ Omega 1.6 μm C18

Mobile Phase: A: 0.1 % Formic Acid in Water
 B: 0.1 % Formic Acid in Acetonitrile
Gradient: Time (min) % B Flow (μL/min)
 0 25 200
 7 25 500



App ID 26826

Two Particle Platforms

Phenomenex offers a range of solid supports including core-shell particle technology, and thermally modified fully porous. The morphology of the solid support has a significant impact on the resulting material characteristics and column performance.

Core-Shell

Unique, solid, silica core and porous outer shell that results in faster chromatography and higher efficiencies than conventional fully porous particles.

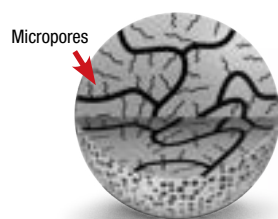


Well suited for:

- Performance gains on ANY LC system
- Easy system-to-system and lab-to-lab method transfer
- Methods where increased sensitivity is required
- Significantly improving the productivity of older, established methods

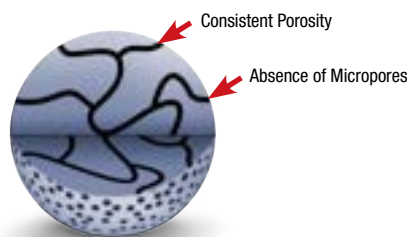
Fully Porous—Thermally Modified Silica

Unique high efficiency and extremely robust fully porous silica that offers astounding performance and inertness alongside versatile selectivities.



Thermally Modified Pore Structure

Most importantly, through our proprietary process, we eliminate micropores, further improving column efficiency, inertness, and reproducibility.



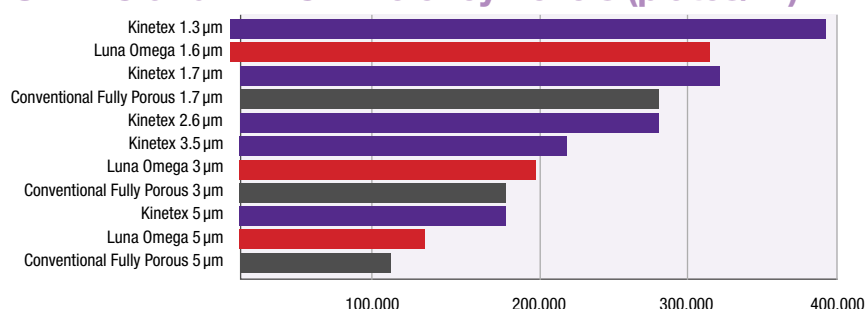
Well suited for:

- Astounding UHPLC, HPLC, and Preparative HPLC performance and efficiencies
- Greater separation muscle
- Better peak shape through an inert foundation
- Extreme ruggedness and dependability

Gain Incredible Performance with Kinetex™ and Luna™ Omega

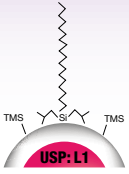
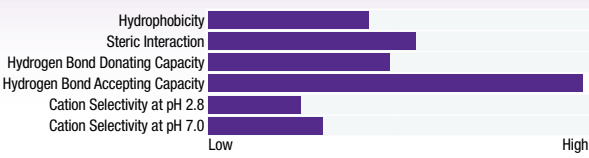
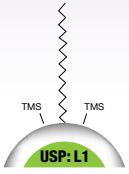
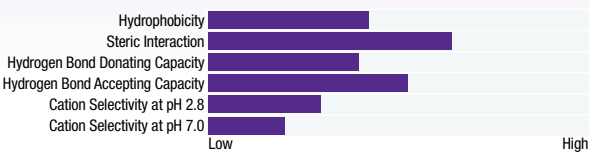
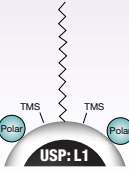
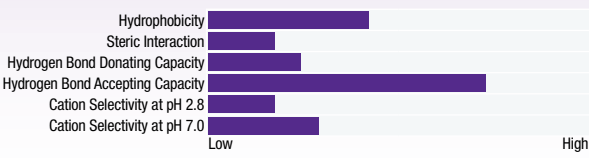
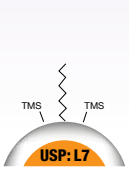
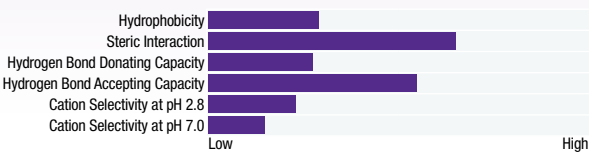
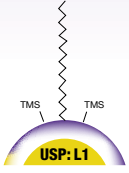
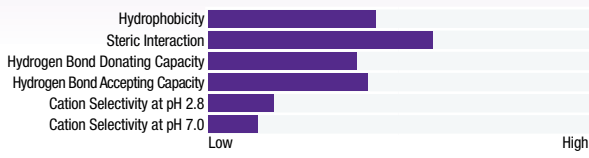
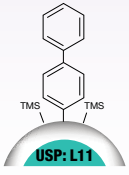
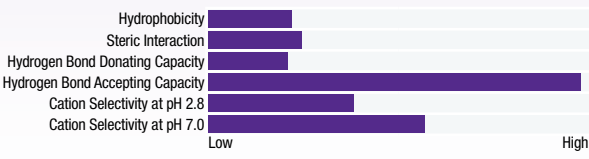
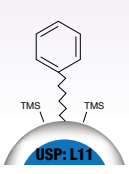
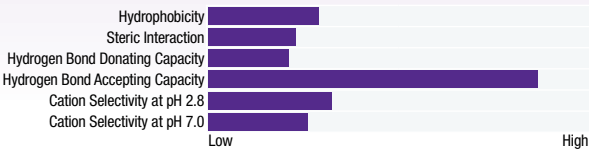
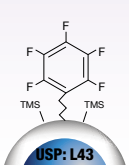
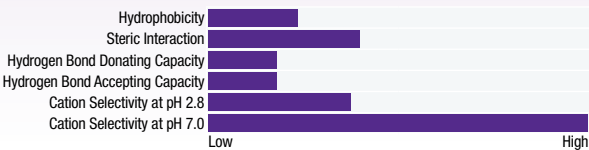
The undeniably high efficiency levels found in each Luna Omega and Kinetex column provides you with the potential of huge gains in method performance. While traditional silica and hybrid fully porous particles may claim high performance, when compared to Luna Omega or Kinetex, they may fall short and prevent HPLC/UHPLC scientists from reaching their goals.

UHPLC and HPLC Efficiency Levels (plates/m)



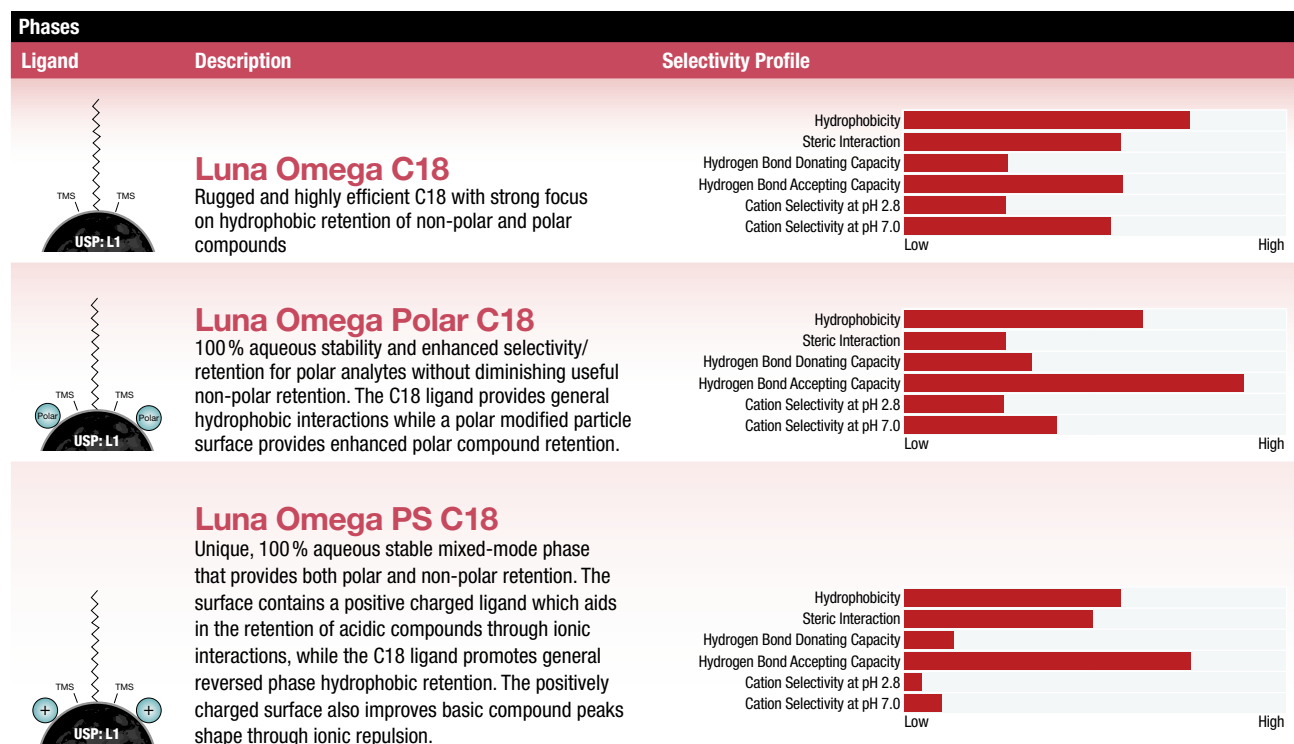
Core-Shell Silica Kinetex™ Phase Portfolio

Kinetex core-shell particles were engineered for improved results, increased productivity, easy transferrability, and cost savings accessible to everyone. You can leverage the power of Kinetex 5 µm to improve 5 and 3 µm methods. Use Kinetex 2.6 µm as a versatile upgrade for both HPLC and UHPLC methods and get the most performance out of your UHPLC with Kinetex 1.3 µm and 1.7 µm.

Phases		
Ligand	Description	Selectivity Profile
	<p>Kinetex XB-C18 Di-isobutyl side chains differentiate this C18 column. Low ligand density and an inactive surface make this column a great hydrogen acceptor. This phase will demonstrate improved peak shape for basic compounds and increased retention of acids.</p>	
	<p>Kinetex C18 Very well balanced column providing some selectivity through steric, hydrogen, and cationic pathways. This is a great starting point for ultra-high efficiency separations.</p>	
	<p>Kinetex Polar C18 Combined C18 and polar modified surface that provide polar and non-polar retention alongside 100% aqueous stability.</p>	
	<p>Kinetex C8 Brings the benefits of core-shell technology to USP L7 methods. The phase will provide moderate hydrophobicity and good steric and hydrogen donating selectivity.</p>	
	<p>Kinetex EVO C18 Novel pH 1-12 stable C18 that delivers robust methods and improved peak shape for bases.</p>	
	<p>Kinetex Biphenyl 100% aqueous stable reversed phase chemistry with hydrophobic, aromatic, and enhanced polar selectivity.</p>	
	<p>Kinetex Phenyl-Hexyl Aromatic and moderate hydrophobic selectivity result in the great retention and separation of aromatic hydrocarbons.</p>	
	<p>Kinetex F5 This pentafluorophenyl propyl column provides a very high degree of steric selectivity to separate structural isomers. The electronegative fluorine groups offer high selectivity for cationic compounds.</p>	

Fully Porous-Thermally Modified Silica Luna™ Omega Phase Portfolio

Luna Omega columns build upon the Luna legacy to provide enhanced and incredible HPLC and UHPLC performance and selectivity. With the unique Luna Omega fully porous, thermally modified silica particles you gain outstanding performance and efficiencies with better peak shapes through an inert foundation.



Material Characteristics

Packing Material	Total Particle Size (µm)	Pore Size (Å)	Effective Surface Area (m ² /g)	Effective Carbon Load %	pH Stability	Pressure Stability
Luna Omega Phases						
C18	1.6, 3, 5	100	260	11	1.5 - 8.5*	1,034/600 [†]
Polar C18	1.6, 3, 5	100	260	9	1.5 - 8.5*	bar
PS C18	1.6, 3, 5	100	260	9	1.5 - 8.5*	
Kinetex Phases						
Polar C18	2.6	100	200	9	1.5-8.5*	1,000/600 [†] bar
EVO C18	1.7, 2.6, 5	100	200	11	1.0-12.0	
C18	1.3, 1.7, 2.6, 5	100	200	12	1.5-8.5*	
XB-C18	1.7, 2.6, 3.5, 5	100	200	10	1.5-8.5*	
C8	1.7, 2.6, 5	100	200	8	1.5-8.5*	
F5	1.7, 2.6, 5	100	200	9	1.5-8.5*	
Biphenyl	1.7, 2.6, 5	100	200	11	1.5-8.5*	
Phenyl-Hexyl	1.7, 2.6, 5	100	200	11	1.5-8.5*	
HILIC	1.7, 2.6, 5	100	200	0	2.0-7.5	

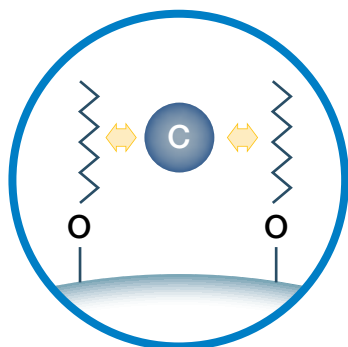
* pH stability under gradient conditions. pH stability is 1.5 - 10 under isocratic conditions.

[†] 2.1 mm ID Kinetex columns are pressure stable up to 1000 bar. 1.6 µm Luna Omega columns are pressure stable up to 1034 bar and 3 or 5 µm are stable up to 600 bar.

When using Kinetex 1.3 µm or 1.7 µm, increased performance can be achieved, however high pressure-capable instrumentation is required.

Columns for Hydrocarbon Compounds

Find the right amount of hydrophobicity for your separations. Our large assortment of HPLC and UHPLC columns that are best suited for the analysis of hydrocarbon compounds are listed in order of hydrophobicity with the highest hydrophobicity columns at the top of the list.

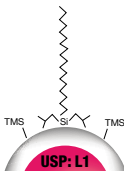
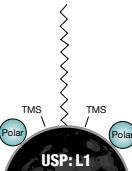
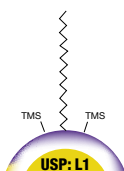
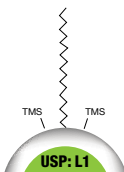
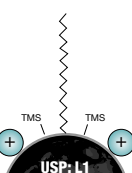
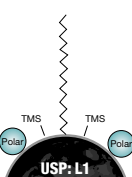
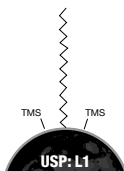


Hydrophobicity

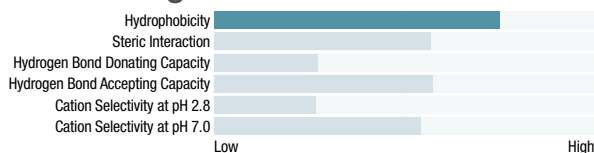
The ability of a phase to hydrophobically interact with carbon groups

Selectivity Tip:

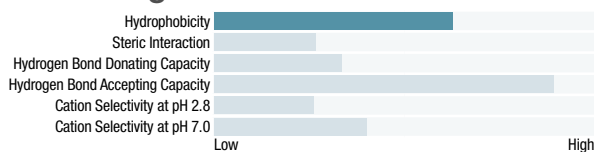
The Partition Coefficient or LogP measures a compounds lipophilicity & can help predict an analytes potential to interact hydrophobically.



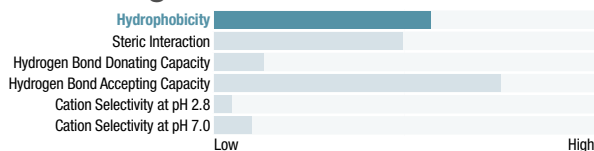
Luna™ Omega C18



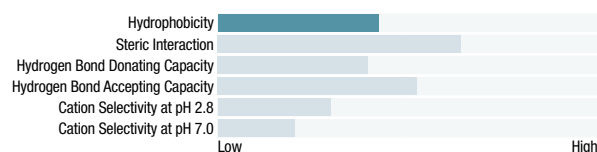
Luna Omega Polar C18



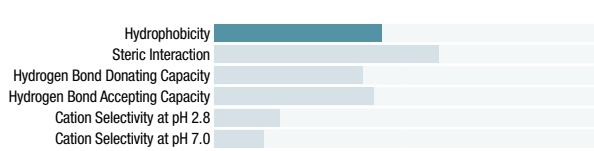
Luna Omega PS C18



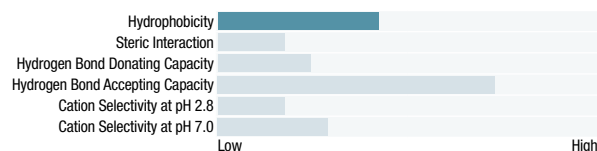
Kinetex™ C18



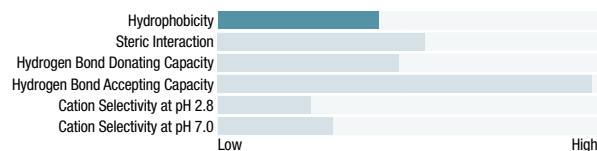
Kinetex EVO C18



Kinetex Polar C18



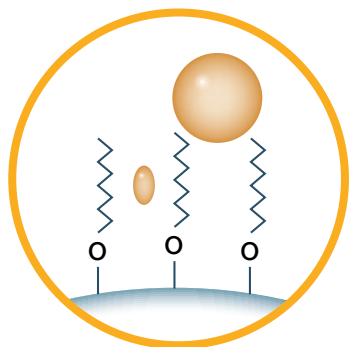
Kinetex XB-C18



= Available in UHPLC

Columns for Isomers and Isobaric Compounds

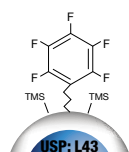
Phenomenex has developed HPLC and UHPLC columns for the successful high resolution separation of compounds based on size and shape. These columns have either high steric interaction values or multiple interaction mechanisms which are best suited for the analysis of isomers and isobaric compounds.



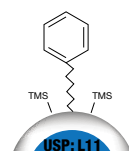
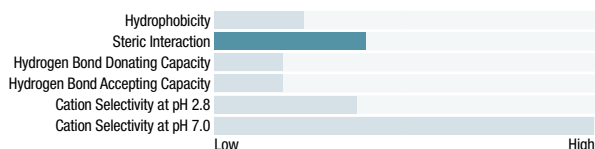
Steric Interaction

The ability of a phase to separate compounds based on structural differences

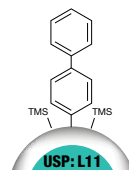
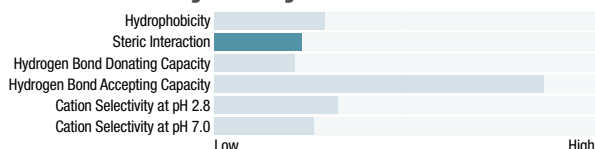
Positional Isomers - Polar/Neutral Functionalities



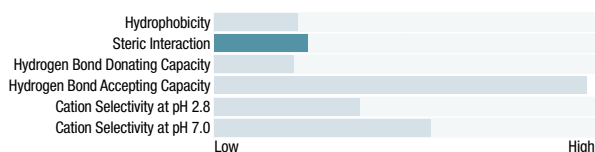
Kinetex™ F5



Kinetex Phenyl-Hexyl



Kinetex Biphenyl



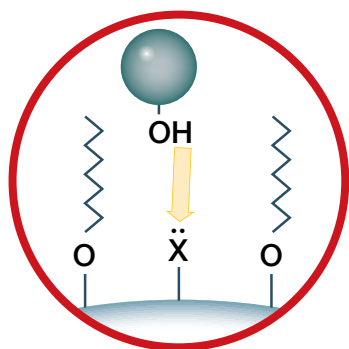
Selectivity Tip:

Try using methanol for the organic portion of the mobile phase. It can help promote pi-pi bond interaction.

= Available in UHPLC

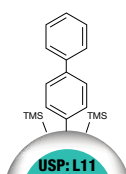
Columns for Hydroxyl- or Amine-Containing Compounds

Our HPLC and UHPLC column recommendations for the analysis of hydroxyl- or amine-containing compounds are listed by hydrogen bond accepting capacity (below) and aromaticity (pg. 22).

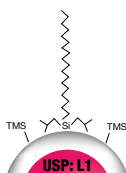
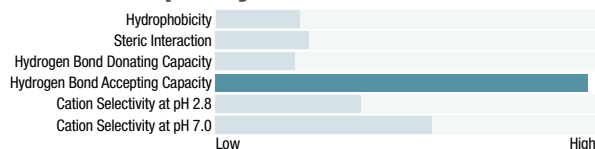


Hydrogen Bond Accepting Capacity

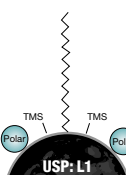
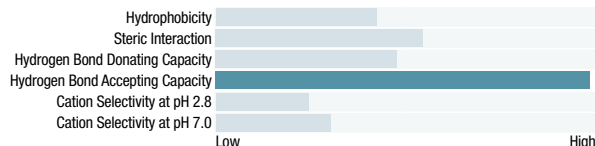
The ability of a phase to hydrogen-bond with proton donating groups



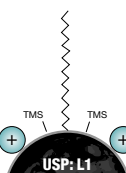
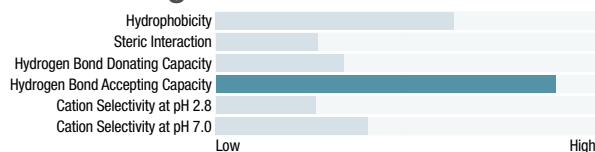
Kinetex™ Biphenyl



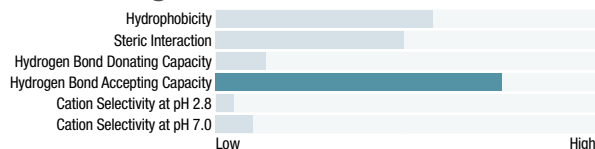
Kinetex XB-C18



Luna™ Omega Polar C18



Luna Omega PS C18



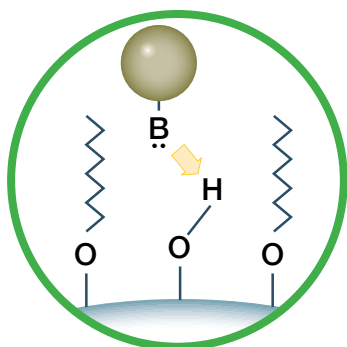
Selectivity Tip:

Hydrogen bonding can occur when a hydrogen atom is bonded to an electronegative atom that is adjacent to an accessible lone pair of electrons of another atom.

= Available in UHPLC

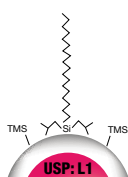
Columns for Non-ionized Bases and Oxygen- or Halogen-Containing Compounds

We recommend the following columns for the separation of non-ionized bases and oxygen- or halogen-containing compounds. Use the charts below to compare the hydrogen bond donating capacity, keeping in mind that a higher hydrogen bond donating capacity will result in greater retention of non-ionized bases and oxygen- or halogen-containing compounds.

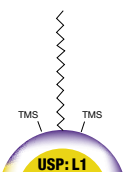
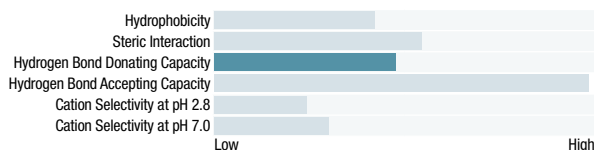


Hydrogen Bond Donating Capacity

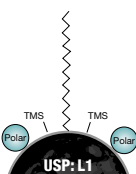
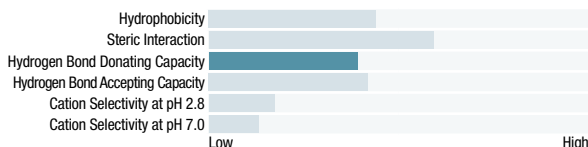
The ability of a phase to hydrogen-bond with proton accepting groups



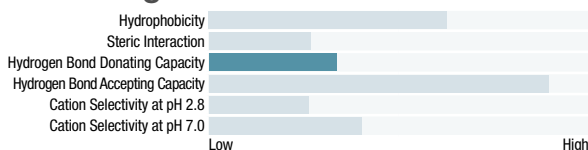
Kinetex™ XB-C18



Kinetex EVO C18



Luna Omega Polar C18



Selectivity Tip: Solvent Polarity Chart

Relative Polarity	Compound Formula	Group	Representative Solvent Compounds
Nonpolar	R - H	Alkanes	Petroleum ethers, ligroin, hexanes
	Ar - H	Aromatics	Toluene, benzene
	R - O - R	Ethers	Diethyl ether
	R - X	Alkyl halides	Tetrachloromethane, chloroform
	R - COOR	Esters	Ethyl acetate
	R - CO - R	Aldehydes and ketones	Acetone, methyl ethyl ketone
	R - NH ₂	Amines	Pyridine, triethylamine
	R - OH	Alcohols	Methanol, ethanol, isopropanol, butanol
	R - COHN ₂	Amides	Dimethylformamide
	R - COOH	Carboxylic acids	Ethanoic acid
	Polar	H - OH	Water

= Available in UHPLC

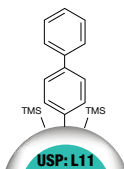
Columns for Aromatic or Ring Containing Compounds

Our selection of HPLC and UHPLC columns that promote pi-pi interactions are listed by aromaticity.

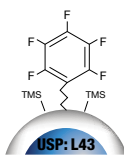
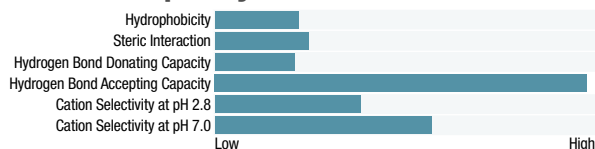


Aromaticity

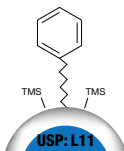
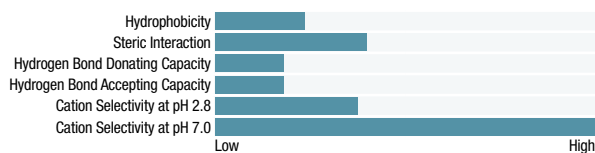
Column chemistries that contain ring structures interact with aromatic or ring containing compounds via pi-pi interactions (π stacking)



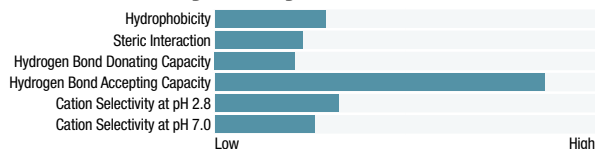
Kinetex™ Biphenyl



Kinetex F5



Kinetex Phenyl-Hexyl



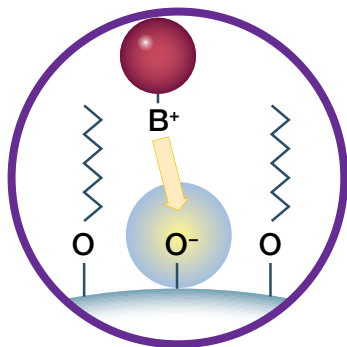
Selectivity Tip:

Aromaticity is a transient attraction between two aromatic rings, resulting from the subsequent alignment of the positive and negative electrostatic potentials of the aromatic rings.

= Available in UHPLC

Columns for Analysis of Polar Basic Compounds

Columns with high cation selectivity values will show higher retention for ionized bases while columns with low cation selectivity values will have less interaction and retention for ionized bases, but may have very good peak shape for bases. We've organized our recommendations for polar basic compounds by increased retention and improved peak shape.

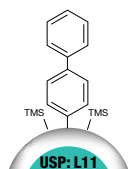


Cation Selectivity

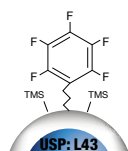
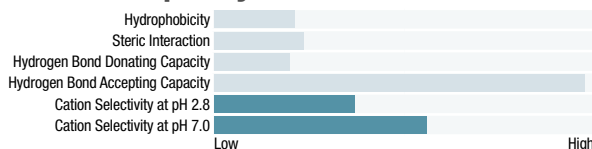
High column cation selectivity values will show higher retention for ionized bases.

Low column cation selectivity values will have less interaction and retention for ionized bases, but may have very good peak shape.

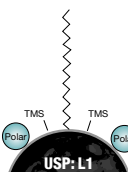
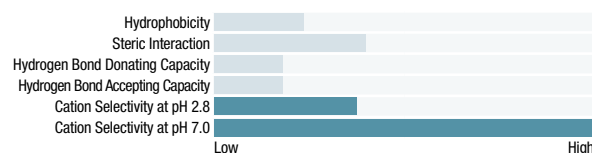
Increased Retention of Polar Bases



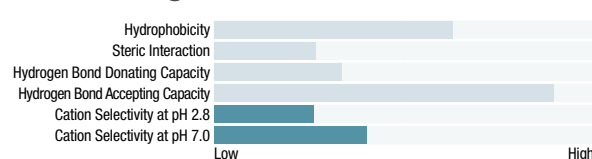
Kinetex™ Biphenyl



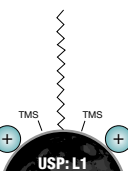
Kinetex F5



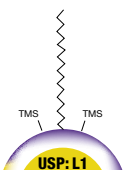
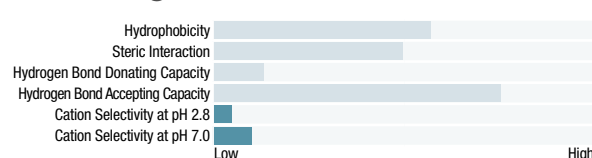
Luna™ Omega Polar C18



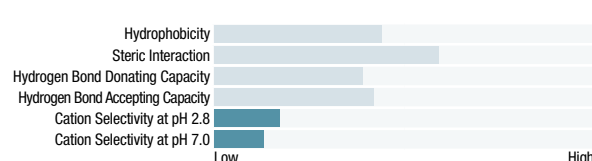
Improved Peak Shape for Bases



Luna Omega PS C18



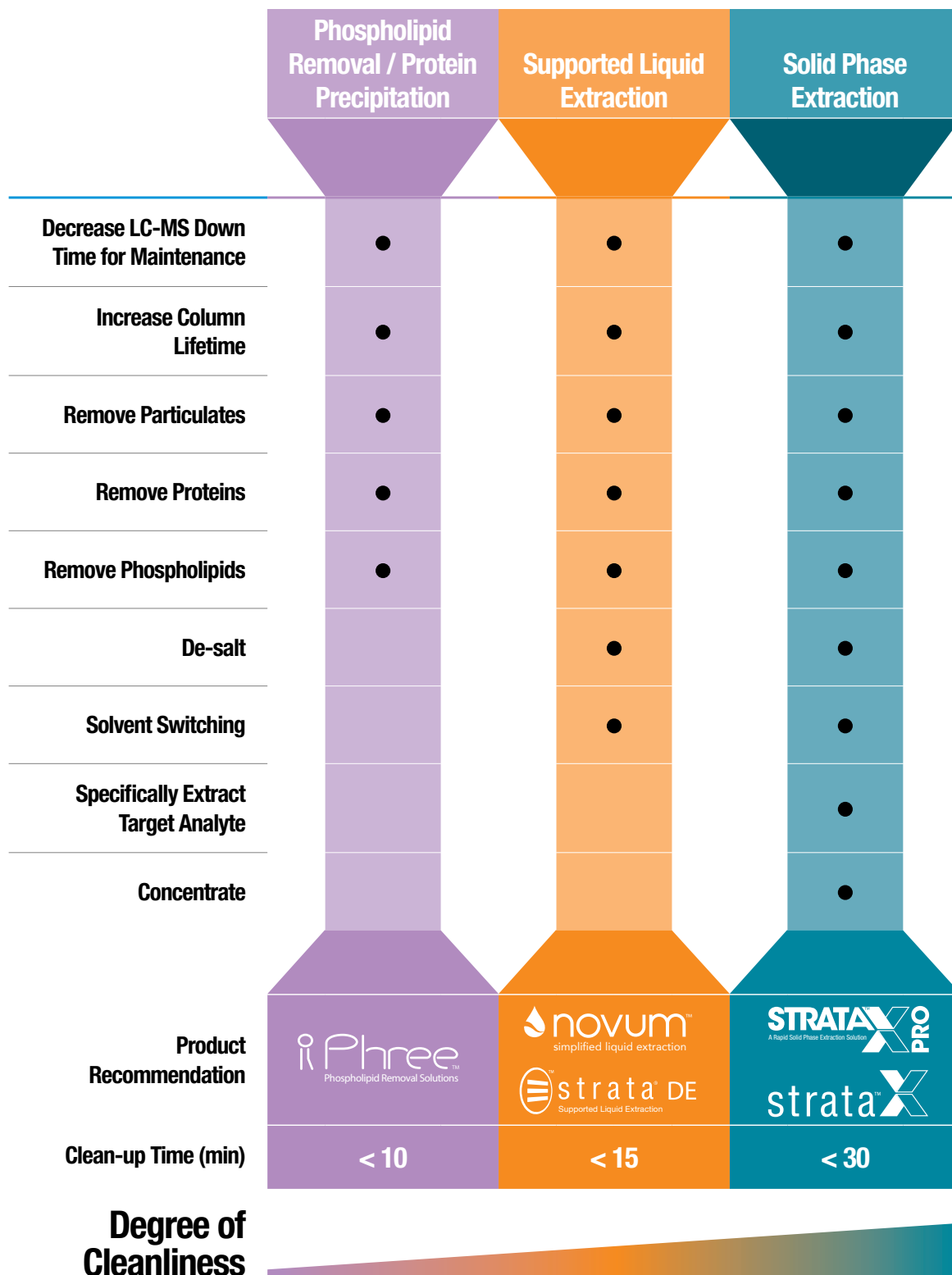
Kinetex EVO C18



= Available in UHPLC

Unwanted Matrix Effects and Contaminants

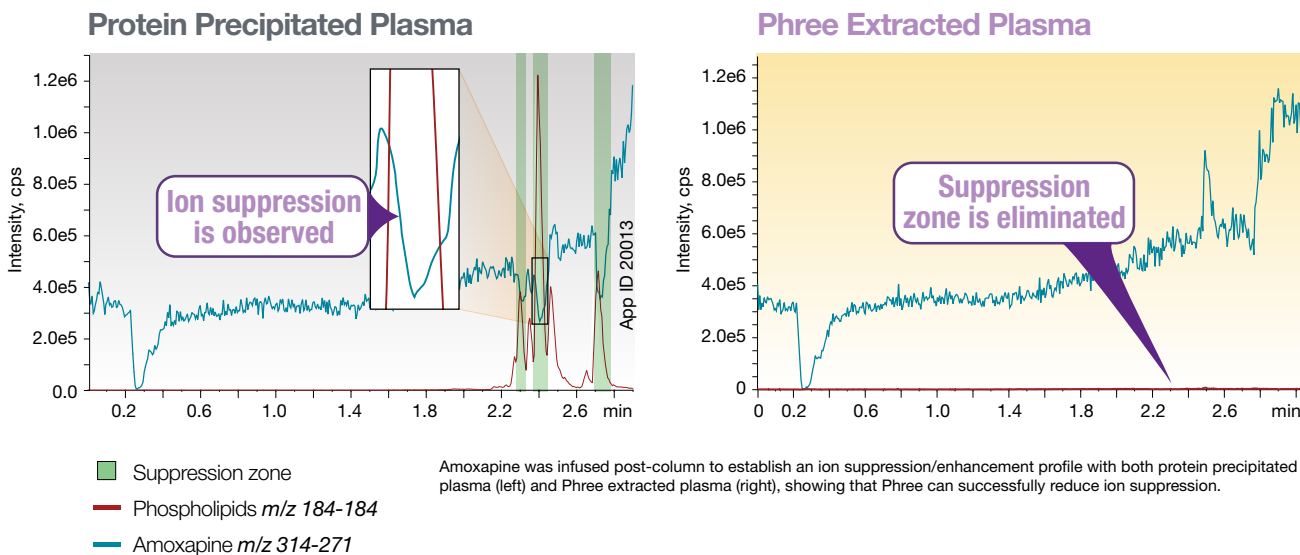
Select the appropriate sample preparation technique for your key requirements.



For more information, please visit www.phenomenex.com/SamplePrep

Reduce Ion Suppression with Phospholipid Removal

The presence of phospholipids in plasma samples produces zones of ion suppression that correlate exactly with the phospholipid elution profile when analyzed via mass spectrometer (MS).



How Phree Works: Three Big Advantages

1 Remove Proteins

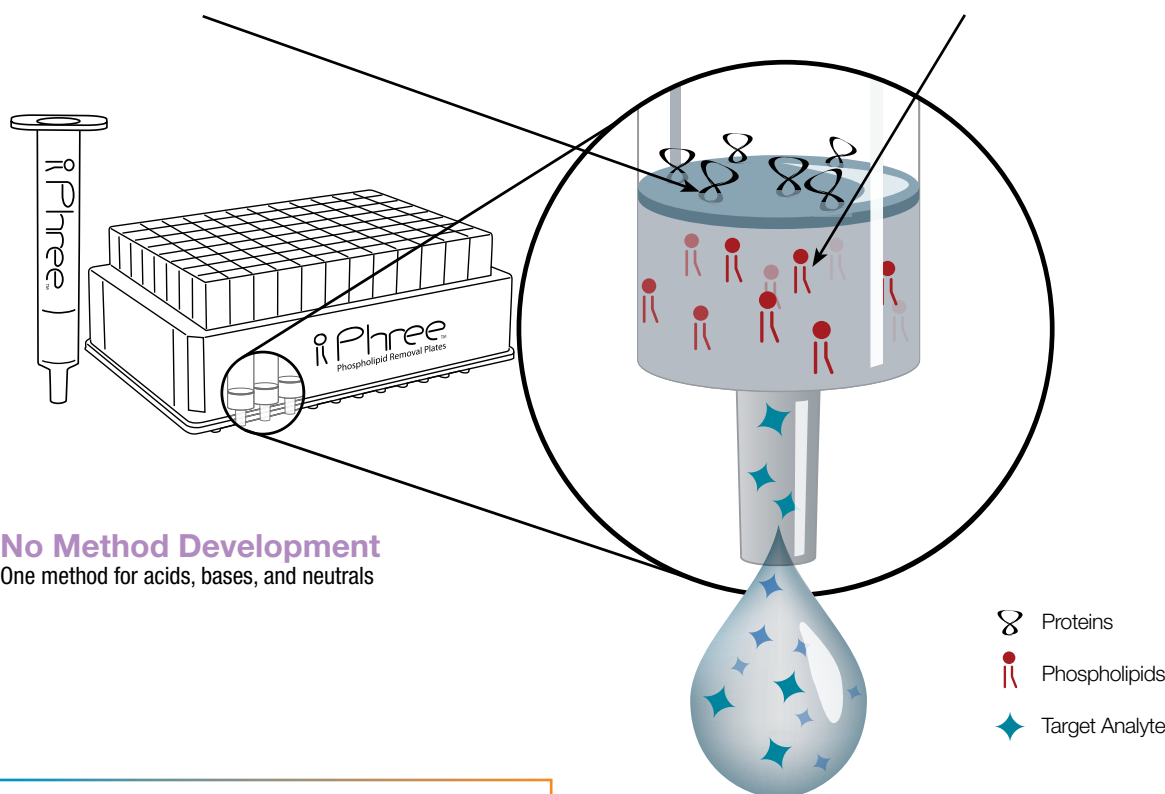
Solvent Shielding Technology™ prevents dripping of organic solvent, allowing for protein precipitation within the Phree Phospholipid Removal Product.

2 Eliminate Phospholipids

The Phree sorbent selectively removes phospholipids from precipitated plasma samples.

3 No Method Development

One method for acids, bases, and neutrals



See how Phree Phospholipid Removal Plates Work:
www.phenomenex.com/Phree

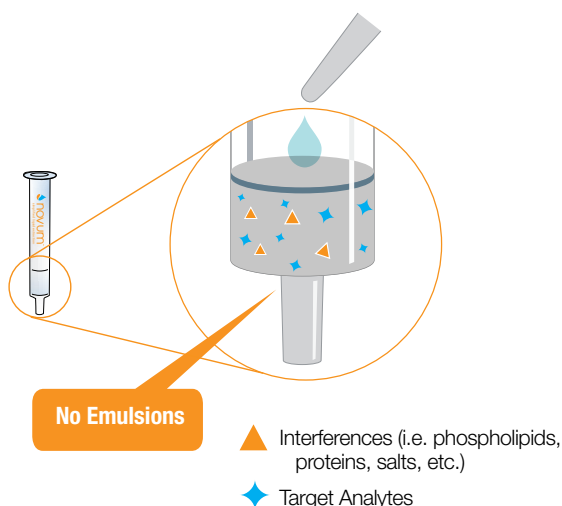
Rapid Clean-Up with Supported Liquid Extraction (SLE)

SLE is a faster, easier, and more reliable way to perform liquid-liquid extractions

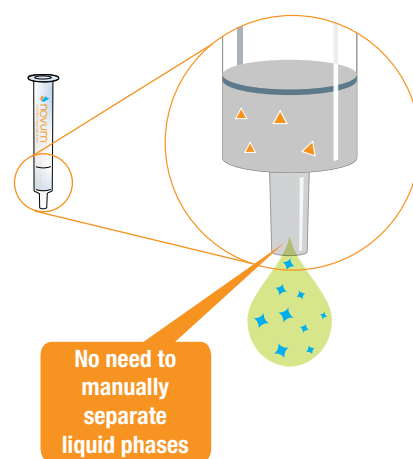
- Eliminates interferences from your analysis, such as proteins and phospholipids, without performing extensive method development
- Novum™ synthetic SLE provides consistent, reliable results lot-to-lot
- Strata™ DE diatomaceous earth SLE is a cost effective alternative to other diatomaceous earth SLE products

An Easy, Automatable Procedure

STEP 01 Load Your Sample in Aqueous Solvent



STEP 02 Collect Your Target Analytes in Water Immiscible Solvent



Determine Which SLE Sorbent is Right for Your Extraction



Synthetic	Sorbent	Diatomaceous Earth
Lot-to-lot consistency and reproducibility	Advantages	Cost effective and large volume capabilities
Ethyl Acetate, Methyl Tert-Butyl Ether (MTBE)	Extraction Solvents	Dichloromethane (DCM), Hexane, MTBE, Ethyl Acetate
MINI 96-Well Plates, MAX 96-Well Plates	Plate Formats	200 µL 96-Well Plates, 400 µL 96-Well Plates
1 cc, 3 cc, 6 cc, 12 cc	Tube Formats	12 cc and 60 cc

Contact your Phenomenex representative to learn which SLE product is right for you!

Cleaner Samples and Improved Recovery Using SPE

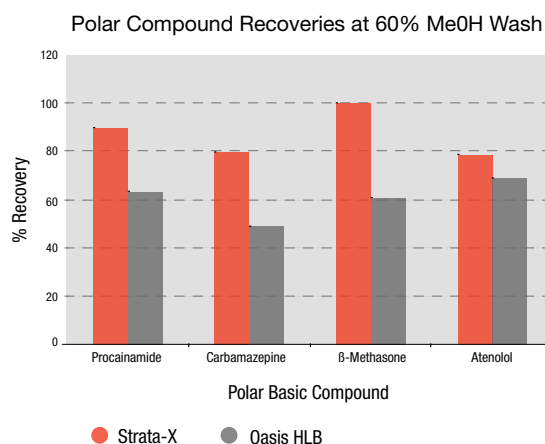
Solid Phase Extraction (SPE) is a very targeted form of sample preparation that allows you to isolate your analyte of interest while removing any interfering compounds that may be in your sample.

- Targeted analyte extraction for cleaner analysis
- Concentration of samples for better chromatographic results
- Solvent switching for GC or LC compatibility

Higher Recoveries with a Stronger Wash Compared to Waters® Oasis® HLB

Strata-X polymeric SPE offers the use of stronger wash solvents for cleaner samples and higher recoveries. Use up to 60% organic without sacrificing recovery!

strata[™]X

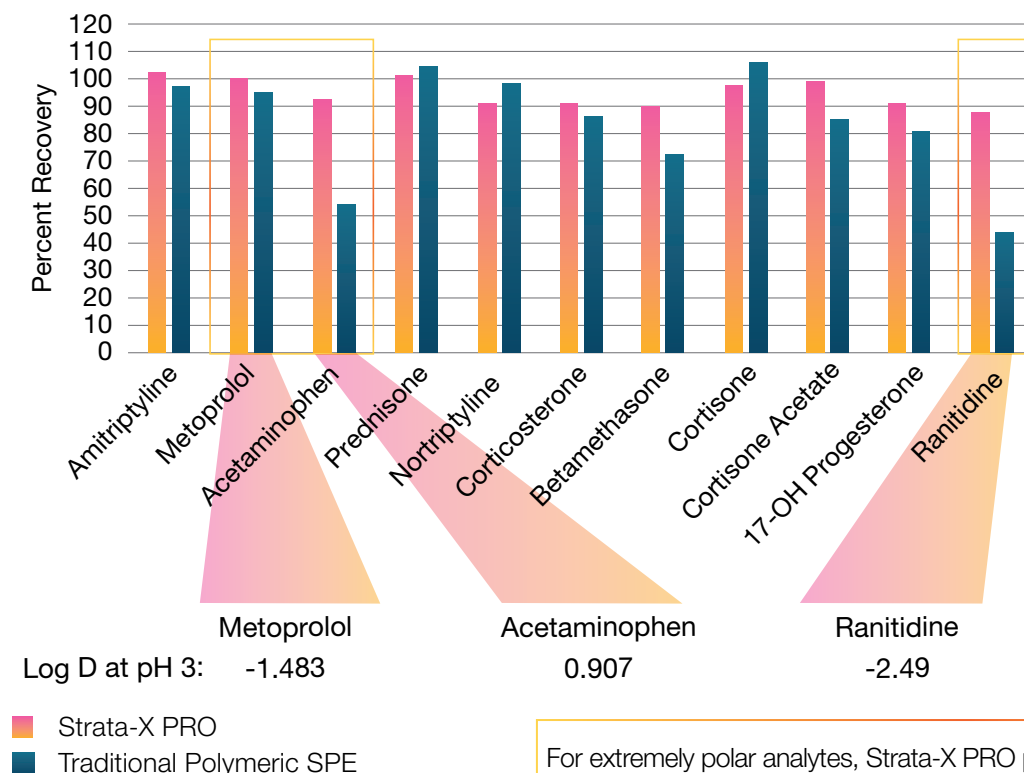


Condition: 800 μL methanol followed by 800 μL water
Load: 500 μL plasma diluted with 1 mL water (spiked conc. ULOQ = 500 ng/mL; LLOQ=5 ng/mL)
Wash 1: 800 μL water
Wash 2: 800 μL 60% MeOH/water
Dry: 1-2 mins at 10" of Hg
Elute: 2 x 200 μL 100% MeOH

Develop SPE methods in under one minute and request a free sample:
www.phenomenex.com/MDTool

Comparative separations may not be representative of all applications.
 * Contact Phenomenex for method details.

Recovery from Human Plasma



For extremely polar analytes, Strata-X PRO provides higher recoveries!

Protect Your Column's Selectivity



Save Time and Money

It's a fact! Chemical contaminants and particulates are a natural part of any chromatographic analysis. The easiest way to extend column performance is to remove these contaminants and particulates with the SecurityGuard Cartridge System before they reach your column and degrade your chromatography.

With SecurityGuard, you will experience:

- Increased column lifetime
- Higher column performance
- More reproducible chromatography
- Fewer wasted columns

UHPLC

SecurityGuard ULTRA

All core-shell and/or < 3 μm particle columns (< 20,000 psi / 1,378 bar)



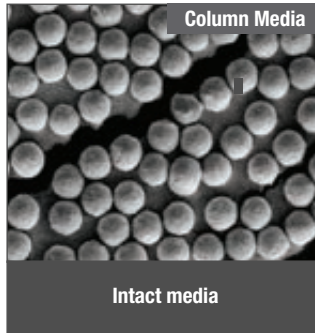
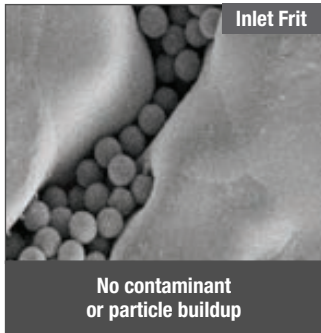
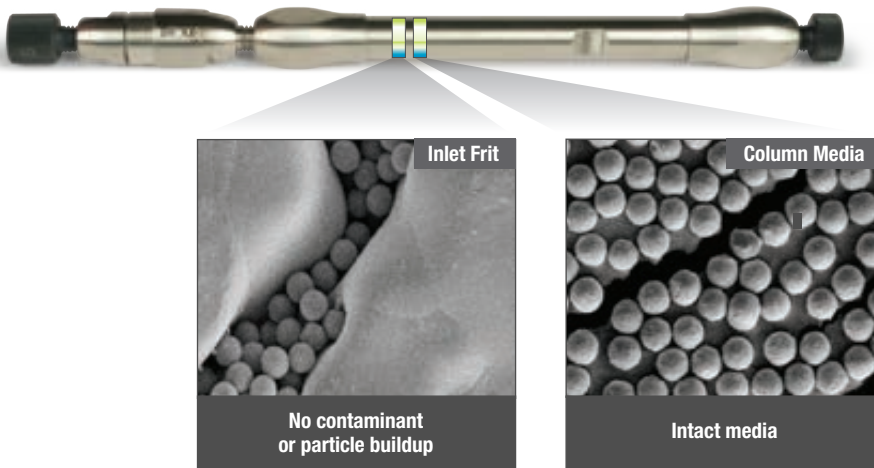
HPLC

SecurityGuard Standard

All non core-shell and ≥ 3 μm particle columns (< 3,500 psi / 241 bar)

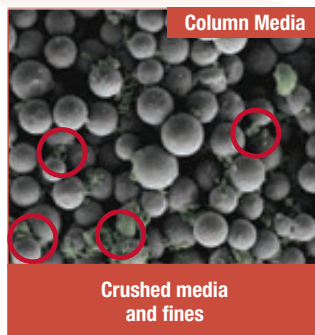
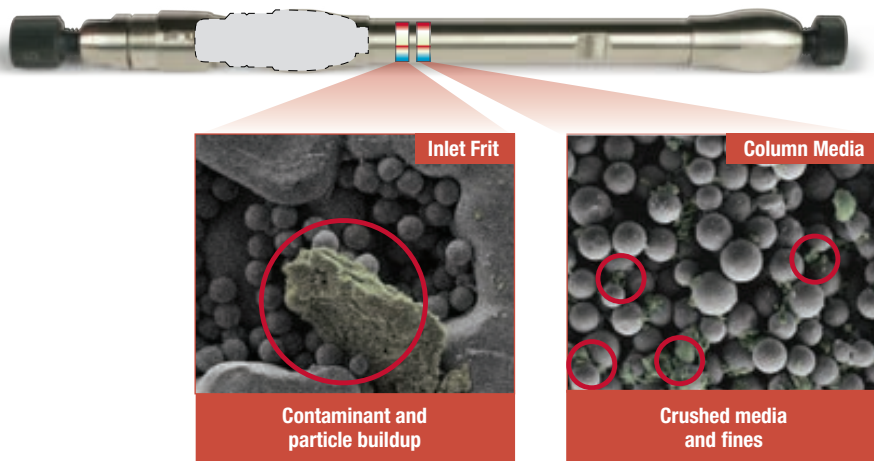


With SecurityGuard ULTRA



(24,000 times magnification)

Without SecurityGuard ULTRA



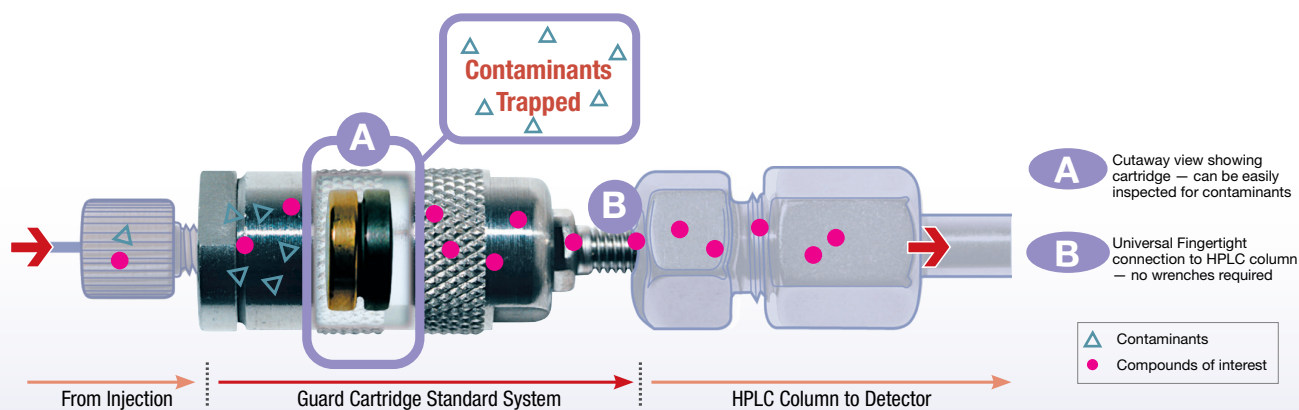
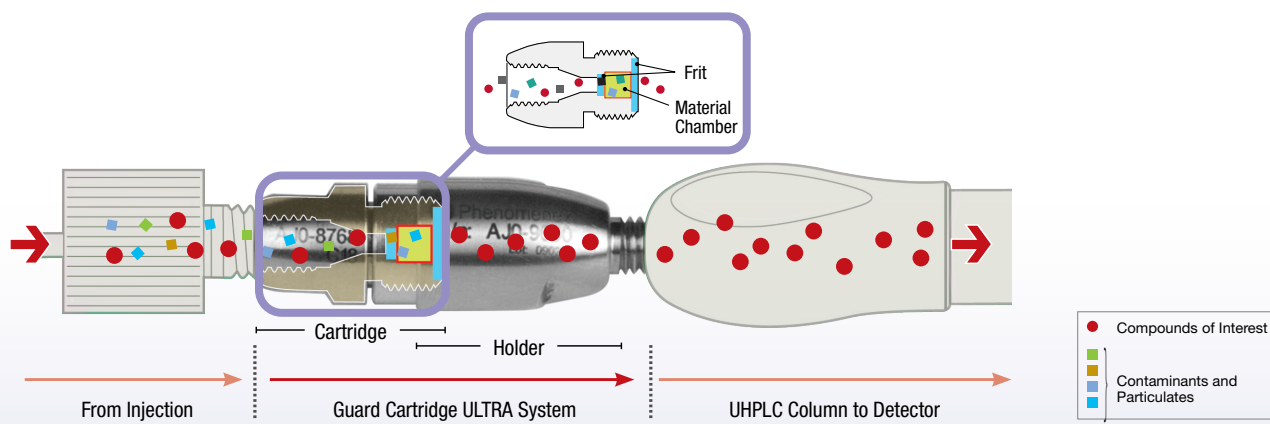
(24,000 times magnification)

“We used to have to change out our columns every 2 to 3 months and ever since we started using the SecurityGuard cartridges we can do at least 6 months before changing a column out.”

T. Serviss

The opinions stated herein are solely those of the speaker and not necessarily those of any company or organization.

Total Column Protection



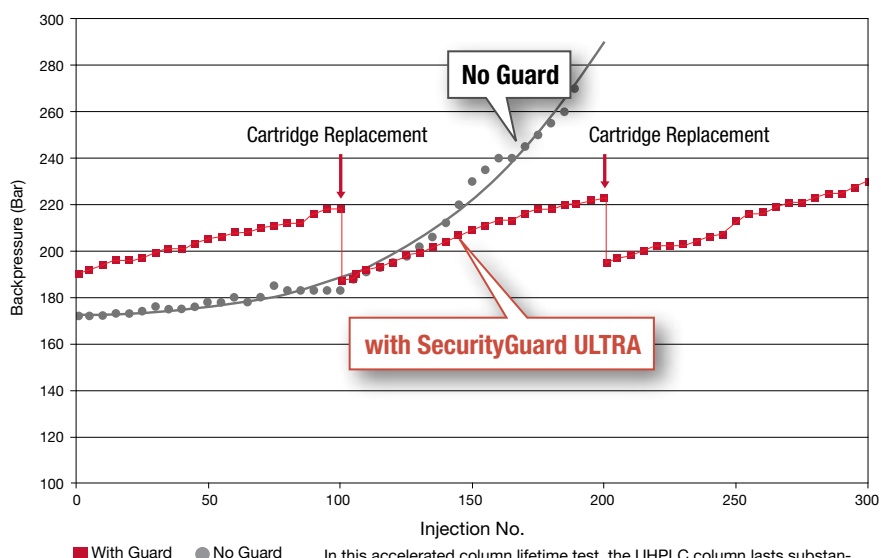
SecurityGuard™ Keeps Columns Performing at Their Best

When contaminants and particulates build up at the head of the column or on the guard cartridges, system pressures dramatically increase.

By simply replacing the SecurityGuard ULTRA cartridge instead of your < 3 μm and/or core-shell UHPLC column, you are able to regain normal operating conditions and reclaim original column performance.

SecurityGuard ULTRA Performance

Accelerated lifetime test using endogenous biological matrix on Kinetex™ 2.6 μm C18 50 x 4.6 mm ID



In this accelerated column lifetime test, the UHPLC column lasts substantially longer with SecurityGuard ULTRA guard cartridge system.

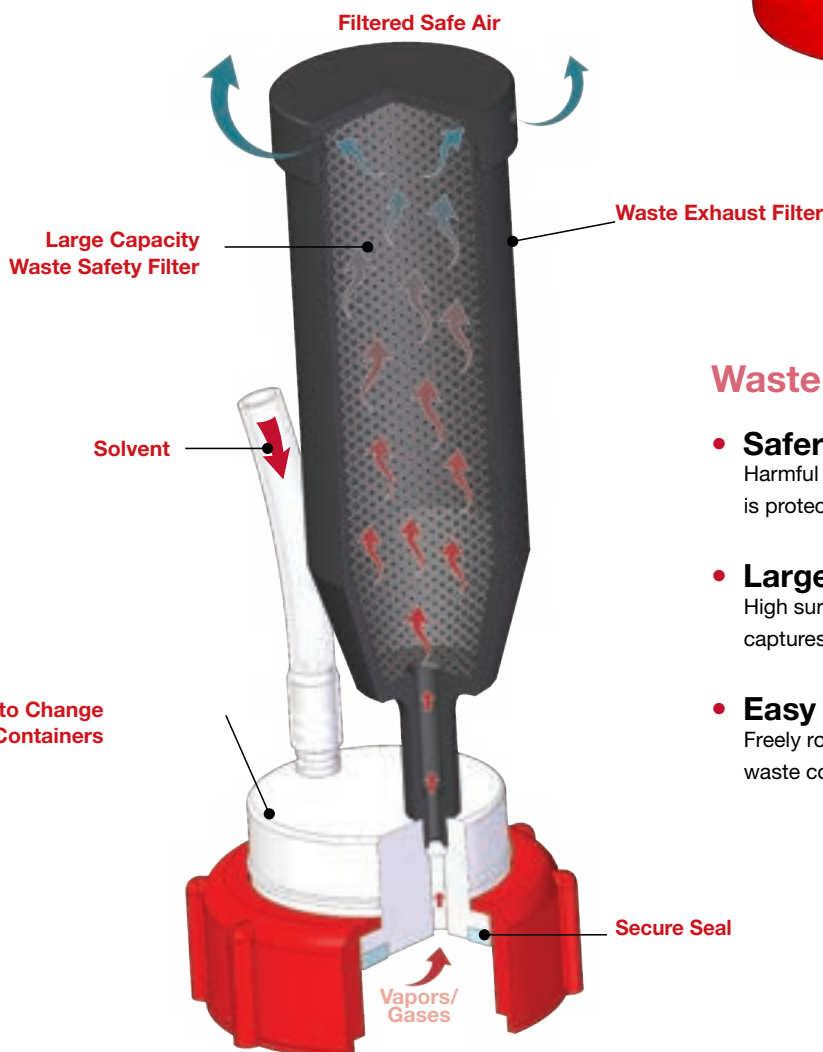
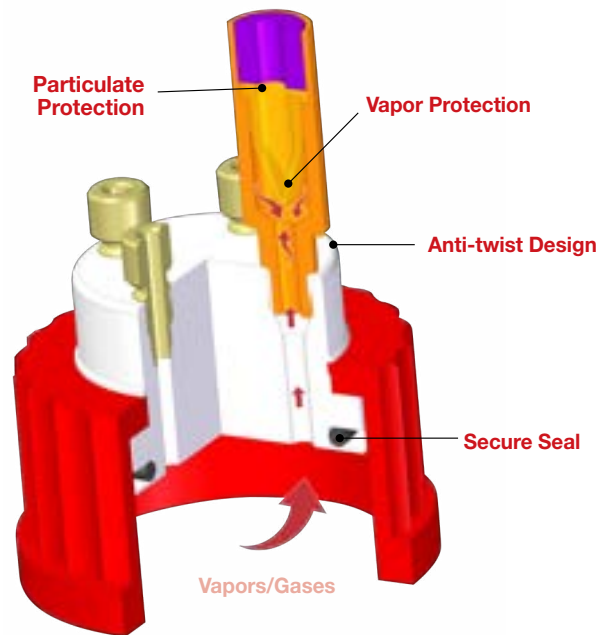
HPLC/UHPLC Solvent Protection SecurityCAPs

Limit Your Exposure

The SecurityCAP™ mobile phase and solvent waste safety caps prevent dangerous vapors and gases from leaving HPLC/UHPLC solvent reservoirs. Over time, these chemicals can have a negative impact on the health of all employees and visitors in the lab. When lab safety and dependable results are a priority, you need SecurityCAPs!

Mobile Phase Safety Filter and Cap

- Increases Health and Worker Safety**
 An integrated one-way valve protects lab air quality by preventing hazardous vapors and gases from leaving the solvent container. The valve allows air to flow into the vessel to compensate for the pressure during solvent removal
- Protects HPLC/UHPLC Results**
 PTFE filter membrane prevents contaminants and dust from entering your solvent
- Confidence During Quality and Safety Audits**
 Eliminate aluminum foil or Parafilm® covering solvent bottles



Waste Exhaust Filter and Cap

- Safer Laboratory Work Environment**
 Harmful chemical vapors are safely collected and air quality is protected
- Large Capacity Waste Safety Filter**
 High surface area (560 m²/g) multi-compound adsorbent captures evaporated solvents
- Easy to Use**
 Freely rotating cap body prevents twisting tubes during waste container exchange

It's Easy to Change Solvent Waste Containers

For more information, visit www.phenomenex.com/SecurityCAP

Avoid Solvent Evaporation

SecurityCAP™ offers several advantages over insufficient non-sealed tops/caps which can lead to both hazardous lab conditions and poor chromatographic results. When it comes to lab safety, saving money on expensive solvents and ensuring solvent protection, there is no comparison to SecurityCAP.



	Open Top	Aluminum foil wrapped bottle top	Cap with two 10 mm holes in the plastic	SecurityCAP
Protects staff and visitors from volatile organic compounds released into lab	No	No	No	Yes
Ensures confidence during quality and safety audits	No	No	No	Yes
Protects solvents from both atmospheric particulates and contaminants	No	No	No	Yes
Saves money by preventing solvent evaporation	No	No	No	Yes
Prevents chemical spills/splashes	No	No	No	Yes
Time monitor device for protection	No	No	No	Yes
100% Sealable	No	No	No	Yes
Easy to use	Yes	No	Yes	Yes
Improves lab safety	No	No	No	Yes

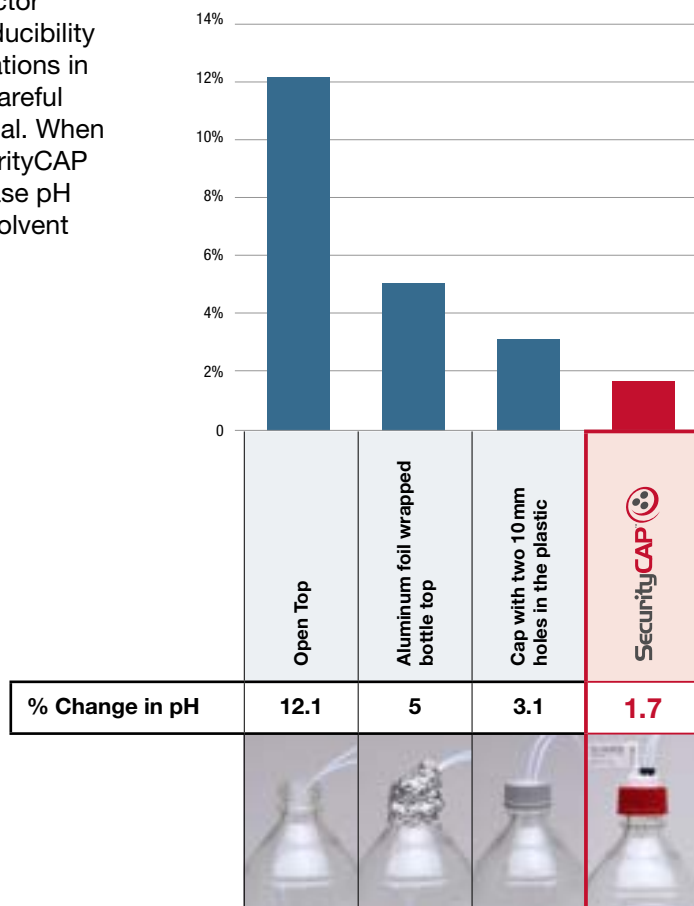
Prevent Unwanted Changes in Mobile Phase pH

As every chromatographer knows, the pH of the mobile phase can have dramatic effects on selectivity, capacity factor (retention factor), peak shape, resolution, and reproducibility of your HPLC/UHPLC analysis. Because slight variations in pH can have a dramatic impact on the separation, careful mobile phase preparation and protection are essential. When compared to other mobile phase solvent tops, SecurityCAP offers the superior solution to ensure the mobile phase pH will stay constant during use. This ensures reliable solvent conditions for results you can trust!



A 1L solution of 4 mM ammonium bicarbonate buffer at pH 11 was made for each bottle and left in a hood for 7 days. The pH was checked before and after the experiment and the percent difference was calculated.

Change in pH over 7 days



Prevent costly rework, and reduce system downtime



Phenex syringe filters increase column lifetime and improve chromatographic reproducibility. Phenex offers a variety of chemically compatible syringe filter membranes that are ideal for any application. Proper membrane and size selection are the keys to choosing the best product matched to your sample while protecting your UHPLC, HPLC, or GC column system from particulate contamination.



Select your filter in three EASY steps:

1. Select filter diameter based on sample volume

If your sample volume is:		
≤ 2 mL Sample Volume	2 to 10 mL Sample Volume	10 to 100 mL Sample Volume
4 mm Diameter 	15 mm Diameter 	25 - 28 mm Diameter

2. Select pore size based on the nature of your sample and chromatographic method

Sample Description	Recommended Filter Pore Size
General aqueous or mixed organic samples prior to HPLC analysis with column packed with > 3µm particles. General clarification of GC, SFC, CE, and GPC samples.	0.45 µm
Viscous samples or samples containing high levels of particulate matter.	0.20 µm
General aqueous or mixed organic samples prior to HPLC analysis with columns packed with ≤ 3µm particles. Removal of fine particulate matter prior to GC, SFC, CE, and GPC samples.	
Liquid samples prior to UHPLC or LC-MS. Other particulate-sensitive methods.	Glass Fiber Filter with 0.45 µm filter membrane
Viscous samples such as serum, plasma, or other biological matrices. Solutions with high particulate load (e.g., some environmental or food and beverage applications).	

3. Select filter membrane according to the characteristics of your sample and filtering objective

Aqueous	Membrane Type
Sample Characteristic: Solvent Mixtures	RC (Regenerated Cellulose)
Tissue Culture Media, Buffers	CA (Cellulose Acetate)
Protein Analysis /Biological Samples	PES or PVDF (Polyethersulfone or Polyvinylidene Fluoride)

Solvents	Membrane Type
Sample Characteristic: Non-Aqueous / Hydrophobic	PTFE (Polytetrafluoroethylene)
Aqueous Mixtures / Hydrophilic	RC or PVDF (Regenerated Cellulose or Polyvinylidene Fluoride)

Particulate-laden samples may require pre-filtration

All-Plastic Disposable Syringes

- Use for all syringe filter applications
- Luer-lock outlet makes connection easy
- Capacities ranging from 3 to 20 mL
- Made of ultra-clean, high-purity plastic



Push to Filter Ready to Inject!

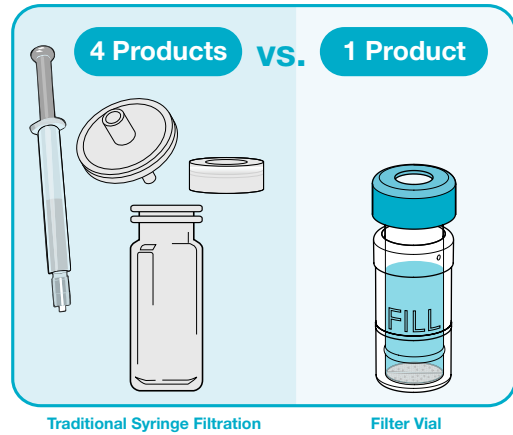


System Protection

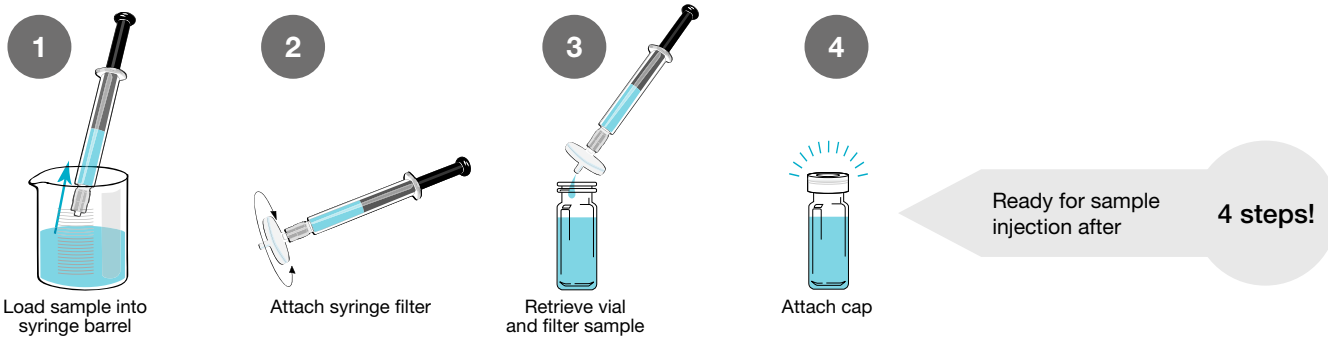
Save Time with Verex Filter Vials

Verex Filter Vials eliminate the need for separate syringes, syringe filters, vials, and cap/septa, allowing you to reduce lab waste and simplify your workflow.

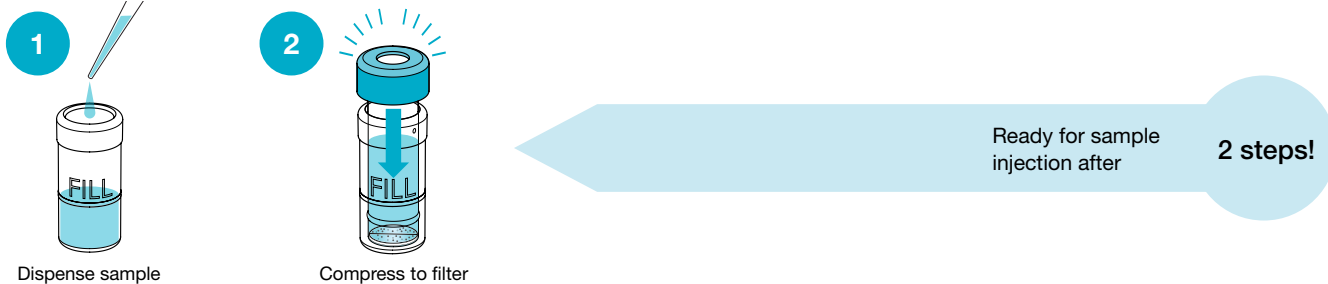
Verex Filter Vials are an easy two-step sample preparation device that consists of two parts: an external vial to be filled with sample and an internal plunger with a filtration membrane and cap with a pre-slit septa.



Traditional Syringe Filtration Method



Verex Filter Vials



Compared to the traditional syringe filtration method, Verex Filter Vials saves you time!

See the Ease of Use Firsthand!

[View the Video Now »](#)








Save Time with Verex Filter Vials

An Easy Two-Step
Sample Preparation Device



Verex Filter Vial

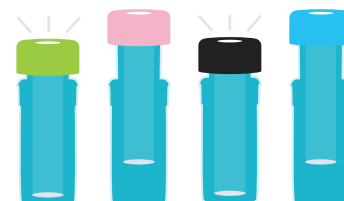
Ordering Information

Description		Pore Size	Part No.	Unit
Verex Filter Vial-RC (Regenerated Cellulose)		0.20 µm	AR0-F103-12	100/pk
		0.45 µm	AR0-F203-12	100/pk
Verex Filter Vial-PTFE (Polytetrafluoroethylene)		0.20 µm	AR0-F102-12	100/pk
		0.45 µm	AR0-F202-12	100/pk
Verex Filter Vial-NY (Nylon)		0.20 µm	AR0-F107-12	100/pk
		0.45 µm	AR0-F207-12	100/pk
Verex Filter Vial-PES (Polyethersulfone)		0.20 µm	AR0-F108-12	100/pk
		0.45 µm	AR0-F208-12	100/pk
Verex Filter Vial-PVDF (Polyvinylidene Fluoride)		0.20 µm	AR0-F106-12	100/pk
		0.45 µm	AR0-F206-12	100/pk

BE-HAPPY™
GUARANTEE

Your happiness is our mission. Take 45 days to try our products. If you are not happy, we'll make it right.

www.phenomenex.com/behappy



Luna Omega

explore

LUNA™
OMEGA



Ordering Information

1.6 µm Microbore Columns (mm)			
Phases	50 x 1.0	100 x 1.0	150 x 1.0
Polar C18	00B-4748-AO	00D-4748-AO	00F-4748-AO
PS C18	—	00D-4752-AO	—
C18	00B-4742-AO	00D-4742-AO	00F-4742-AO

1.6 µm Minibore Columns (mm)				SecurityGuard™ ULTRA Cartridges†	
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
Polar C18	00A-4748-AN	00B-4748-AN	00D-4748-AN	00F-4748-AN	AJO-9505
PS C18	00A-4752-AN	00B-4752-AN	00D-4752-AN	00F-4752-AN	AJO-9508
C18	00A-4742-AN	00B-4742-AN	00D-4742-AN	00F-4742-AN	AJO-9502

for 2.1 mm ID

3 µm Micro LC Columns (mm)							Trap Column
Phases	50 x 0.30	100 x 0.30	150 x 0.30	50 x 0.50	100 x 0.50	150 x 0.50	20 x 0.30
Polar C18	00B-4760-AC	00D-4760-AC	00F-4760-AC	00B-4760-AF	00D-4760-AF	00F-4760-AF	—
PS C18	00B-4758-AC	00D-4758-AC	00F-4758-AC	00B-4758-AF	00D-4758-AF	00F-4758-AF	05M-4758-AC

3 µm Minibore Columns (mm)				SecurityGuard Cartridges (mm)	
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	4 x 2.0* /10 pk
Polar C18	00A-4760-AN	00B-4760-AN	00D-4760-AN	00F-4760-AN	AJO-7600
PS C18	00A-4758-AN	00B-4758-AN	00D-4758-AN	00F-4758-AN	AJO-7605
C18	—	00B-4784-AN	00D-4784-AN	00F-4784-AN	AJO-7611
SUGAR	—	00B-4775-AN	00D-4775-AN	00F-4775-AN	AJO-4496

for ID: 2.0-3.0 mm

3 µm MidBore™ Columns (mm)			SecurityGuard Cartridges (mm)	
Phases	50 x 3.0	100 x 3.0	150 x 3.0	4 x 2.0* /10 pk
Polar C18	00B-4760-YO	00D-4760-YO	00F-4760-YO	AJO-7600
PS C18	00B-4758-YO	00D-4758-YO	00F-4758-YO	AJO-7605
C18	00B-4784-YO	00D-4784-YO	00F-4784-YO	AJO-7611
SUGAR	—	—	00F-4775-YO	AJO-4496

for ID: 2.0-3.0 mm

3 µm Analytical Columns (mm)				SecurityGuard Cartridges (mm)	
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	4 x 3.0* /10 pk
Polar C18	00B-4760-E0	00D-4760-E0	00F-4760-E0	00G-4760-E0	AJO-7601
PS C18	00B-4758-E0	00D-4758-E0	00F-4758-E0	00G-4758-E0	AJO-7606
C18	00B-4784-E0	00D-4784-E0	00F-4784-E0	00G-4784-E0	AJO-7612
SUGAR	—	00D-4775-E0	00F-4775-E0	00G-4775-E0	AJO-4495

for ID: 3.2-8.0 mm

5 µm Minibore and MidBore™ Columns (mm)						SecurityGuard Cartridges (mm)	
Phases	50 x 2.1	100 x 2.1	150 x 2.1	50 x 3.0	100 x 3.0	150 x 3.0	4 x 2.0* /10 pk
Polar C18	00B-4754-AN	00D-4754-AN	00F-4754-AN	00B-4754-YO	00D-4754-YO	00F-4754-YO	AJO-7600
PS C18	00B-4753-AN	00D-4753-AN	00F-4753-AN	00B-4753-YO	00D-4753-YO	00F-4753-YO	AJO-7605

for ID: 2.0 - 3.0 mm

5 µm Analytical Columns (mm)				SecurityGuard Cartridges (mm)	
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	4 x 3.0* /10 pk
Polar C18	00B-4754-E0	00D-4754-E0	00F-4754-E0	00G-4754-E0	AJO-7601
PS C18	00B-4753-E0	00D-4753-E0	00F-4753-E0	00G-4753-E0	AJO-7606
C18	00B-4785-E0	00D-4785-E0	00F-4785-E0	00G-4785-E0	AJO-7612

for ID: 3.2-8.0 mm

5 µm Semi-Preparative Columns (mm)		SecurityGuard Cartridges (mm)	
Phases	250 x 10	10 x 10** /3 pk	
Polar C18	00G-4754-N0	AJO-9519	
PS C18	00G-4753-N0	AJO-9520	

for ID: 9-16 mm

5 µm Axia™ Packed Preparative Columns (mm)					SecurityGuard Cartridges (mm)	
Phases	50 x 21.2	100 x 21.2	150 x 21.2	250 x 21.2	15 x 21.2** /ea	
Polar C18	00B-4754-PO-AX	00D-4754-PO-AX	00F-4754-PO-AX	00G-4754-PO-AX	AJO-7603	
PS C18	00B-4753-PO-AX	00D-4753-PO-AX	00F-4753-PO-AX	00G-4753-PO-AX	AJO-7608	
C18	—	—	—	00G-4785-PO-AX	—	

for ID: 18-29 mm

5 µm Axia™ Packed Preparative Columns (mm) (cont'd)					SecurityGuard Cartridges (mm)	
Phases	100 x 30	150 x 30	250 x 30	250 x 50	15 x 30.0* /ea	
Polar C18	00D-4754-U0-AX	00F-4754-U0-AX	00G-4754-U0-AX	00G-4754-V0-AX	AJO-7604	
PS C18	00D-4753-U0-AX	00F-4753-U0-AX	00G-4753-U0-AX	00G-4753-V0-AX	AJO-7609	

for ID: 30-49 mm

† SecurityGuard ULTRA Cartridges require holder, Part No.: AJO-9000

* SecurityGuard Analytical Cartridges require holder, Part No.: KJO-4282

**SemiPREP SecurityGuard Cartridges require holder, Part No.: AJO-9281

**PREP SecurityGuard Cartridges require holder, Part No.: AJO-8223

♦PREP SecurityGuard Cartridges require holder, Part No.: AJO-8277

Kinetex



1.3 µm Minibore Columns (mm)

Phases	30 x 2.1	50 x 2.1
C18	00A-4515-AN	00B-4515-AN

1.7 µm Microbore Columns (mm)

Phases	50 x 1.0	100 x 1.0	150 x 1.0
EVO C18	00B-4726-AO	00D-4726-AO	00F-4726-AO
Biphenyl	00B-4628-AO	00D-4628-AO	00F-4628-AO

1.7 µm Minibore Columns (mm)					SecurityGuard™ ULTRA Cartridges [‡]
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
EVO C18	—	00B-4726-AN	00D-4726-AN	00F-4726-AN	AJO-9298
F5	—	00B-4722-AN	00D-4722-AN	00F-4722-AN	AJO-9322
Biphenyl	—	00B-4628-AN	00D-4628-AN	00F-4628-AN	AJO-9209
XB-C18	00A-4498-AN	00B-4498-AN	00D-4498-AN	00F-4498-AN	AJO-8782
C18	00A-4475-AN	00B-4475-AN	00D-4475-AN	00F-4475-AN	AJO-8782
C8	00A-4499-AN	00B-4499-AN	00D-4499-AN	00F-4499-AN	AJO-8784
HILIC	00A-4474-AN	00B-4474-AN	00D-4474-AN	—	AJO-8786
Phenyl-Hexyl	—	00B-4500-AN	00D-4500-AN	00F-4500-AN	AJO-8788

for 2.1 mm ID

1.7 µm MidBore Columns (mm)

1.7 µm MidBore Columns (mm)				SecurityGuard™ ULTRA Cartridges [‡]
Phases	30 x 3.0	50 x 3.0	100 x 3.0	3/pk
XB-C18	00A-4498-YO	00B-4498-YO	00D-4498-YO	AJO-8775
C18	—	00B-4475-YO	00D-4475-YO	AJO-8775
C8	00A-4499-YO	00B-4499-YO	00D-4499-YO	AJO-8777
HILIC	—	00B-4474-YO	—	AJO-8779

for 3.0 mm ID

2.6 µm Analytical Columns (mm)

2.6 µm Analytical Columns (mm)						SecurityGuard™ ULTRA Cartridges [‡]
Phases	30 x 4.6	50 x 4.6	75 x 4.6	100 x 4.6	150 x 4.6	3/pk
EVO C18	—	00B-4725-EO	—	00D-4725-EO	00F-4725-EO	AJO-9296
Polar C18	—	00B-4759-EO	—	00D-4759-EO	00F-4759-EO	AJO-9532
F5	—	00B-4723-EO	—	00D-4723-EO	00F-4723-EO	AJO-9320
Biphenyl	—	00B-4622-EO	—	00D-4622-EO	00F-4622-EO	AJO-9207
XB-C18	—	00B-4496-EO	00C-4496-EO	00D-4496-EO	00F-4496-EO	AJO-8768
C18	00A-4462-EO	00B-4462-EO	00C-4462-EO	00D-4462-EO	00F-4462-EO	AJO-8768
C8	—	00B-4497-EO	00C-4497-EO	00D-4497-EO	00F-4497-EO	AJO-8770
HILIC	—	00B-4461-EO	00C-4461-EO	00D-4461-EO	00F-4461-EO	AJO-8772
Phenyl-Hexyl	—	00B-4495-EO	00C-4495-EO	00D-4495-EO	00F-4495-EO	AJO-8774

for 4.6 mm ID

[‡] SecurityGuard ULTRA Cartridges require holder, Part No.: AJO-9000.

BE-HAPPY™ GUARANTEE

Your happiness is our mission. Take 45 days to try our products. If you are not happy, we'll make it right.

www.phenomenex.com/behappy



Kinetex has earned a Gold Seal of Quality!

Learn more at

www.phenomenex.com/Gold

2.6 µm Microbore Columns (mm)			
Phases	50 x 1.0	100 x 1.0	150 x 1.0
XB-C18	00B-4496-A0	00D-4496-A0	00F-4496-A0

2.6 µm Minibore Columns (mm)						SecurityGuard™ ULTRA Cartridges [‡]
Phases	30 x 2.1	50 x 2.1	75 x 2.1	100 x 2.1	150 x 2.1	3/pk
EVO C18	00A-4725-AN	00B-4725-AN	—	00D-4725-AN	00F-4725-AN	AJO-9298
Polar C18	00A-4759-AN	00B-4759-AN	—	00D-4759-AN	00F-4759-AN	AJO-9530
F5	00A-4723-AN	00B-4723-AN	—	00D-4723-AN	00F-4723-AN	AJO-9322
Biphenyl	00A-4622-AN	00B-4622-AN	—	00D-4622-AN	00F-4622-AN	AJO-9209
XB-C18	00A-4496-AN	00B-4496-AN	00C-4496-AN	00D-4496-AN	00F-4496-AN	AJO-8782
C18	00A-4462-AN	00B-4462-AN	00C-4462-AN	00D-4462-AN	00F-4462-AN	AJO-8782
C8	00A-4497-AN	00B-4497-AN	00C-4497-AN	00D-4497-AN	00F-4497-AN	AJO-8784
HILIC	00A-4461-AN	00B-4461-AN	00C-4461-AN	00D-4461-AN	00F-4461-AN	AJO-8786
Phenyl-Hexyl	00A-4495-AN	00B-4495-AN	00C-4495-AN	00D-4495-AN	00F-4495-AN	AJO-8788

for 2.1 mm ID

2.6 µm MidBore™ Columns (mm)						SecurityGuard ULTRA Cartridges [‡]
Phases	30 x 3.0	50 x 3.0	75 x 3.0	100 x 3.0	150 x 3.0	3/pk
EVO C18	—	00B-4725-Y0	—	00D-4725-Y0	00F-4725-Y0	AJO-9297
Polar C18	—	00B-4759-Y0	—	00D-4759-Y0	00F-4759-Y0	AJO-9531
F5	—	00B-4723-Y0	—	00D-4723-Y0	00F-4723-Y0	AJO-9321
Biphenyl	—	00B-4622-Y0	—	00D-4622-Y0	00F-4622-Y0	AJO-9208
XB-C18	00A-4496-Y0	00B-4496-Y0	00C-4496-Y0	00D-4496-Y0	00F-4496-Y0	AJO-8775
C18	00A-4462-Y0	00B-4462-Y0	00C-4462-Y0	00D-4462-Y0	00F-4462-Y0	AJO-8775
C8	00A-4497-Y0	00B-4497-Y0	00C-4497-Y0	00D-4497-Y0	00F-4497-Y0	AJO-8777
HILIC	00A-4461-Y0	—	—	—	00F-4461-Y0	AJO-8779
Phenyl-Hexyl	—	00B-4495-Y0	—	00D-4495-Y0	00F-4495-Y0	AJO-8781

for 3.0 mm ID

3.5 µm Analytical Columns (mm)			SecurityGuard ULTRA Cartridges [‡]
Phases	100 x 4.6	150 x 4.6	3/pk
XB-C18	00D-4744-E0	00F-4744-E0	AJO-8768

for 4.6 mm ID

[‡] SecurityGuard ULTRA Cartridges require holder, Part No.: AJO-9000

MercuryMS™ Cartridge System

Cartridge

Kinetex 2.6 µm Biphenyl MercuryMS	
Part No.	Description
00M-4622-B0-CE	Cartridge 20 x 2.0 mm*

* MercuryMS 20 x 2.0 mm cartridges require 20 mm direct-connect cartridge holder or standard cartridge holder



Cartridges

Cartridge Holder

Direct-Connect Cartridge Holders	
Part No.	Description
CHO-7188	20 mm direct-connect holder



Direct-Connect Holder

Standard Cartridge Holders	
Part No.	Description
CHO-5845	20 mm standard holder



Standard Holder

BE-HAPPY™
GUARANTEE

Your happiness is our mission. Take 45 days to try our products. If you are not happy, we'll make it right.

www.phenomenex.com/behappy



5 µm Minibore Columns (mm)					SecurityGuard™ ULTRA Cartridges‡
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
EVO C18	00A-4633-AN	00B-4633-AN	00D-4633-AN	00F-4633-AN	AJO-9298
F5	00A-4724-AN	00B-4724-AN	00D-4724-AN	00F-4724-AN	AJO-9322
Biphenyl	00A-4627-AN	00B-4627-AN	00D-4627-AN	—	AJO-9209
XB-C18	00A-4605-AN	00B-4605-AN	00D-4605-AN	—	AJO-8782
C18	00A-4601-AN	00B-4601-AN	00D-4601-AN	00F-4601-AN	AJO-8782
C8	—	00B-4608-AN	00D-4608-AN	—	AJO-8784
Phenyl-Hexyl	—	00B-4603-AN	00D-4603-AN	—	AJO-8788

for 2.1 mm ID

5 µm MidBore™ Columns (mm)				SecurityGuard ULTRA Cartridges‡
Phases	50 x 3.0	100 x 3.0	150 x 3.0	3/pk
EVO C18	00B-4633-YO	00D-4633-YO	00F-4633-YO	AJO-9297
F5	00B-4724-YO	00D-4724-YO	00F-4724-YO	AJO-9321
Biphenyl	00B-4627-YO	00D-4627-YO	00F-4627-YO	AJO-9208
XB-C18	00B-4605-YO	00D-4605-YO	00F-4605-YO	AJO-8775
C18	00B-4601-YO	00D-4601-YO	00F-4601-YO	AJO-8775
C8	00B-4608-YO	00D-4608-YO	—	AJO-8777
Phenyl-Hexyl	00B-4603-YO	00D-4603-YO	—	AJO-8781

for 3.0 mm ID

5 µm Analytical Columns (mm)					SecurityGuard ULTRA Cartridges‡
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	3/pk
EVO C18	00B-4633-E0	00D-4633-E0	00F-4633-E0	00G-4633-E0	AJO-9296
F5	00B-4724-E0	00D-4724-E0	00F-4724-E0	00G-4724-E0	AJO-9320
Biphenyl	00B-4627-E0	00D-4627-E0	00F-4627-E0	00G-4627-E0	AJO-9207
XB-C18	00B-4605-E0	00D-4605-E0	00F-4605-E0	00G-4605-E0	AJO-8768
C18	00B-4601-E0	00D-4601-E0	00F-4601-E0	00G-4601-E0	AJO-8768
C8	00B-4608-E0	00D-4608-E0	00F-4608-E0	00G-4608-E0	AJO-8770
Phenyl-Hexyl	00B-4603-E0	00D-4603-E0	00F-4603-E0	00G-4603-E0	AJO-8774

for 4.6 mm ID

‡ SecurityGuard ULTRA Cartridges require holder, Part No.: AJO-9000

BE-HAPPY™ GUARANTEE

Your happiness is our mission. Take 45 days to try our products. If you are not happy, we'll make it right.

www.phenomenex.com/behappy

Sample Prep Solutions


Diatomaceous Earth SLE


Strata™ DE Diatomaceous Earth SLE 96-Well Plates		
Part No.	Description	Unit
8E-S325-FGB	Strata DE SLE 200 µL 96-Well Plate	2/pk
8E-S325-5GB	Strata DE SLE 400 µL 96-Well Plate	2/pk


Strata DE Diatomaceous Earth SLE Tubes		
Part No.	Description	Unit
8B-S325-KDG	Strata DE SLE 12 cc Tubes	20/pk
8B-S325-VFF	Strata DE SLE 60 cc Tubes	16/pk

Strata-X Polymer-Based Sorbents 96-Well Plates (2/box)†				
Phase	10 mg	30 mg	60 mg	
Strata-X-AW	8E-S038-AGB	8E-S038-TGB	8E-S038-UGB	
Strata-X-A	8E-S123-AGB	8E-S123-TGB	8E-S123-UGB	
Strata-X	8E-S100-AGB	8E-S100-TGB	8E-S100-UGB	
Strata-X-C	8E-S029-AGB	8E-S029-TGB	8E-S029-UGB	
Strata-X-CW	8E-S035-AGB	8E-S035-TGB	8E-S035-UGB	
Strata-XL-AW	–	8E-S051-TGB	–	
Strata-XL-A	–	8E-S053-TGB	–	
Strata-XL	–	8E-S043-TGB	–	
Strata-XL-C	–	8E-S044-TGB	–	
Strata-XL-CW	–	8E-S052-TGB	–	

Solid Phase Extraction (SPE)

Format	Sorbent Mass	Part Number	Unit
	10 mg	8B-S536-AAK	1 mL (100/box)
	30 mg	8B-S536-TAK	1 mL (100/box)
	30 mg	8B-S536-TBJ	3 mL (50/box)
	60 mg	8B-S536-UBJ	3 mL (50/box)
	200 mg	8B-S536-FBJ	3 mL (50/box)
	100 mg	8B-S536-ECH	6 mL (30/box)
	200 mg	8B-S536-FCH	6 mL (30/box)
	500 mg	8B-S536-HCH	6 mL (30/box)

96-Well Plate			
	10 mg/well	8E-S536-AGA	ea
	30 mg/well	8E-S536-TGA	ea
	60 mg/well	8E-S536-UGA	ea

96-Well Microelution Plate			
	2 mg/well	8M-S536-4GA	ea

96-Well Plate Accessories			
Part No.	Description	Unit	
Collection Plates (deep well, polypropylene)			
AH0-7192	350 µL/well 96-Square Well Conical V-bottom	50/pk	
AH0-7193	1 mL/well 96-Square Well Conical V-bottom	50/pk	
AH0-7194	2 mL/well 96-Square Well Conical V-bottom	50/pk	
AH0-8636	2 mL/well 96-Round Well Round Bottom, 8 mm	50/pk	
AH1-7025	1 mL/well 96-Round Well Round Bottom, 7 mm	50/pk	
Sealing Mats			
AH0-8597	Sealing Mats, Pierceable, 96-Square Well, Silicone	50/pk	
AH0-8598	Sealing Mats, Pre-Slit, 96-Square Well, Silicone	50/pk	
AH0-8631	Sealing Mats, Pierceable, 96-Round Well 7 mm, Silicone	50/pk	
AH0-8632	Sealing Mats, Pre-Slit, 96-Round Well 7 mm, Silicone	50/pk	
AH0-8633	Sealing Mats, Pierceable, 96-Round Well 8 mm, Silicone	50/pk	
AH0-8634	Sealing Mats, Pre-Slit, 96-Round Well 8 mm, Silicone	50/pk	
AH0-7362	Sealing Tape Pad	10/pk	

Strata-X Microelution Plates 96-Well Plates (ea)	
Phase	2 mg
Strata-AW	8M-S038-4GA
Strata-A	8M-S123-4GA
Strata-X	8M-S100-4GA
Strata-X-C	8M-S029-4GA
Strata-X-CW	8M-S035-4GA

Synthetic SLE

Novum™ Simplified Liquid Extraction SLE 96-Well Plates		
Part No.	Description	Unit
8E-S138-FGA	Novum SLE MINI 96-Well Plate	1/pk
8E-S138-5GA	Novum SLE MAX 96-Well Plate	1/pk
8E-S539-FGA	Novum SLE PRO MINI 96-Well Plate	1/pk
8E-S539-5GA	Novum SLE PRO MAX 96-Well Plate	1/pk

Novum Simplified Liquid Extraction SLE Tubes		
Part No.	Description	Unit
8B-S138-FAK	Novum SLE 1 cc Tubes	100/pk
8B-S138-5BJ	Novum SLE 3 cc Tubes	50/pk
8B-S138-JCH	Novum SLE 6 cc Tubes	30/pk
8B-S138-KDG	Novum SLE 12 cc Tubes	20/pk

Phree™ Phospholipid Removal Products†		
Part No.	Description	Unit
8E-S133-TGB	Phree Phospholipid Removal 96-Well Plates	2/pk
8B-S133-TAK	Phree Phospholipid Removal Tabbed 1 mL Tubes	100/pk



Presston 1000 Positive Pressure Manifold	
Part No.	Description
AH1-7033	Presston 1000 Positive Pressure Manifold, 96-Well Plate, Complete Assembly

Vacuum Manifolds		
Part No.	Description	Unit
VM12	12-Position Tube Vacuum Manifold Set, Complete Assembly	ea
VM24	24-Position Tube Vacuum Manifold Set, Complete Assembly	ea
AH0-8950	96-Well Plate Manifold, Universal with Vacuum Gauge	ea

BE-HAPPY™
GUARANTEE

Your happiness is our mission. Take 45 days to try our products. If you are not happy, we'll make it right.
www.phenomenex.com/behappy



Ensure Reliability

Phenomenex warrants the Presston 1000 Positive Pressure Manifold against defects in materials and workmanship under normal installation, use, and maintenance for a period of 12 months following delivery. Please visit www.phenomenex.com/presstonwarranty for complete warranty information.

SecurityCAP



Starter Kits

SecurityCAP Mobile Phase (Eluent) Safety Starter Kits		
Part No.	Description	Unit
AC2-1245	2-port GL45 Cap and 6-month Safety Filter	ea
AC2-4245	2-port GL45 Caps (x4) and 6-month Safety Filters (x4)	ea
AC2-4240	2-port Merck S40 Caps (x4) and 6-month Safety Filters (x4)	ea
AC2-1345	3-port GL45 Cap and 6-month Safety Filter	ea
AC2-4345	3-port GL45 Caps (x4) and 6-month Safety Filters (x4)	ea
AC2-4445	4-port GL45 Cap (x1) and 2-port Caps (3x) and 6-month Safety Filters (x4)	ea
AC2-1445	4-port GL45 Cap and 6-month Safety Filter	ea
AC2-1545	5-port GL45 Cap and 6-month Safety Filter	ea
AC2-1561	5-port S60/S61 Cap and 6-month Safety Filter	ea

SecurityCAP Waste Safety Starter Kits		
Part No.	Description	Unit
AC1-1245	2-port GL/DIN45 Cap and 6-month Exhaust Filter and Barbed Connector	ea
AC1-1545	5-port GL/DIN45 Cap and 6-month Exhaust Filter	ea
AC1-1551	5-port DIN51 Cap and 6-month Exhaust Filter	ea
AC1-1561	5-port S61 Cap and 6-month Exhaust Filter	ea
AC1-1553	5-port B53 Cap and 6-month Exhaust Filter	ea

Replacement Filters

SecurityCAP Mobile Phase Safety Filters		
Part No.	Description	Unit
AC2-0161	6-month Capacity, 1/4 in.-28 Threads	ea
AC2-0961	6-month Capacity, 1/4 in.-28 Threads	10/pk

Replacement Filters

SecurityCAP Waste Safety Filters		
Part No.	Description	Unit
AC1-0161	6-month Exhaust Filter for SecurityCAP, 1/4 in.-28 Threads	ea
AC1-0361	6-month Exhaust Filter for SecurityCAP, 1/4 in.-28 Threads	3/pk
AC1-0162	6-month Exhaust Filter for Wide-port Caps, GL14 Threads	ea
AC1-0362	6-month Exhaust Filter for Wide-port Caps, GL14 Threads	3/pk

Fittings and Accessories

SecurityCAP™ Fittings		
Part No.	Description	Unit
AC3-1101	for 1/16 in. or 2.0 mm ID Tubing, 1/4 in.-28 Threads (POM), blue	ea
AC3-1201	for 2.3-2.6 mm ID Tubing, 1/4 in.-28 Threads (POM), white	ea
AC3-2101	for 1/8 in. ID Tubing, 1/4 in.-28 Threads (POM), black	ea

SecurityCAP Adapter		
Part No.	Description	Unit
AC2-1138	Cap Thread Adapter, PTFE, GPI/GL 38 Female to GL45 Male	ea

SecurityCAP Connectors		
Part No.	Description	Unit
AC3-1001	Barbed Connector, for 5-8 mm ID Tubing (PTFE), white	ea
AC3-1301	Y-connector, for 6-8 mm ID Tubing (POM), white	ea

SecurityCAP Sealing Plug		
Part No.	Description	Unit
AC3-2001	1/4 in.-28 Threads (POM), white	ea

Disclaimer
The 6 month SecurityCAP filter lifetime is a general guideline based on running a single instrument for 8 hours a day at 1 mL/min. SecurityCAP filters may need to be changed more or less frequently based on the system usage.

POM = polyoxymethylene
PTFE = polytetrafluoroethylene (Teflon®)



SecurityCAP Waste Safety Compatibility Table

Supplier	Phenomenex SecurityCAP Filters	
	ea	3/pk
S.C.A.T.® SafetyWasteCaps	AC1-0162	AC1-0362
AIT® Smart Healthy Caps	AC1-0162	AC1-0362
Agilent® InfinityLab Stay Safe Caps	AC1-0162	AC1-0362
VICI Jour® Waste Caps	AC1-0161	AC1-0361
Canary-Safe™ Safety Caps	AC1-0162	AC1-0362
VICI Jour®	AC1-0162	AC1-0362
VapLock® Safety Caps (with AC3-1111)	AC1-0161	AC1-0361

BE-HAPPY™
GUARANTEE

Your happiness is our mission. Take 45 days to try our products. If you are not happy, we'll make it right.
www.phenomenex.com/behappy

Phenex™ Syringe Filters



Membrane Type/Size	4 mm Diameter for <2 mL sample volumes		15 mm Diameter for 2–10 mL sample volumes		25–28 mm Diameter for 10–100 mL sample volumes	
	Part No.	Unit	Part No.	Unit	Part No.	Unit
0.20 µm						
Phenex-RC (Regenerated Cellulose)	AF0-3203-12	100/pk	AF0-2203-12	100/pk	AF0-8203-12 ⁵	100/pk
	AF0-3203-52	500/pk	AF0-2203-52	500/pk	AF0-8203-52 ⁵	500/pk
Phenex-PES ³ (Polyethersulfone)	—	—	—	—	AF0-8208-12 ⁷	100/pk
	—	—	—	—	AF0-8208-52 ⁷	500/pk
Phenex-PTFE ⁶ (Polytetrafluoroethylene)	AF0-3202-12	100/pk	AF0-2202-12	100/pk	AF0-1202-12	100/pk
	AF0-3202-52	500/pk	AF0-2202-52	500/pk	AF0-1202-52	500/pk
Phenex-NY (Nylon)	AF3-3207-12	100/pk	AF0-2207-12	100/pk	AF0-1207-12	100/pk
	AF3-3207-52	500/pk	AF0-2207-52	500/pk	AF0-1207-52	500/pk
Phenex-GF/NY (Glass Fiber/Nylon)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a Nylon (NY) membrane. Excellent for filtration of particle-laden samples, such as foods and beverages, environmental, biofuels, and dissolution samples. Use less hand pressure to filter even the most difficult samples. Outlet connection is luer lock.				AF0-1A47-12 ⁷	100/pk
					AF0-1A47-52 ⁷	500/pk
Phenex-PVDF (Polyvinylidene Fluoride)	—	—	AF6-5206-12 ⁸	100/pk	AF6-6206-12	100/pk
	—	—	AF6-5206-52 ⁸	500/pk	AF6-6206-52	500/pk
Phenex-GF/PVDF (Glass Fiber/Polyvinylidene Fluoride)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a PVDF membrane. The hydrophilic PVDF membrane provides high flow rates and throughput, low extractables and broad chemical compatibility. This membrane binds less protein than nylon or PTFE membranes.				AF6-6C06-12	100/pk
					AF6-6C06-52	500/pk
Phenex-CA ⁴ (Cellulose Acetate)	—	—	—	—	AF0-8204-12 ⁷	100/pk
	—	—	—	—	AF0-8204-52 ⁷	500/pk
Phenex-GF/CA ^{2,3,4} (Glass Fiber/Cellulose Acetate)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a CA membrane. Excellent for filtration of tissue culture media, general biological sample filtration and clarification. Outlet connection is luer lock.				AF0-8A09-12 ⁷	100/pk
					AF0-8A09-52 ⁷	500/pk
0.45 µm						
Phenex-RC (Regenerated Cellulose)	AF0-3103-12	100/pk	AF0-2103-12	100/pk	AF0-8103-12 ⁵	100/pk
	AF0-3103-52	500/pk	AF0-2103-52	500/pk	AF0-8103-52 ⁵	500/pk
Phenex-PES ³ (Polyethersulfone)	—	—	—	—	AF0-8108-12 ⁷	100/pk
	—	—	—	—	AF0-8108-52 ⁷	500/pk
Phenex-PTFE ⁶ (Polytetrafluoroethylene)	AF0-3102-12	100/pk	AF0-2102-12	100/pk	AF0-1102-12	100/pk
	AF0-3102-52	500/pk	AF0-2102-52	500/pk	AF0-1102-52	500/pk
Phenex-NY (Nylon)	AF3-3107-12	100/pk	AF0-2107-12	100/pk	AF0-1107-12	100/pk
	AF3-3107-52	500/pk	AF0-2107-52	500/pk	AF0-1107-52	500/pk
Phenex-GF/NY (Glass Fiber/Nylon)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a Nylon (NY) membrane. Excellent for filtration of particle-laden samples, such as foods and beverages, environmental, biofuels, and dissolution samples. Use less hand pressure to filter even the most difficult samples. Outlet connection is luer lock.				AF0-1B47-12 ⁷	100/pk
					AF0-1B47-52 ⁷	500/pk
Phenex-PVDF (Polyvinylidene Fluoride)	—	—	AF6-5106-12 ⁸	100/pk	AF6-6106-12	100/pk
	—	—	AF6-5106-52 ⁸	500/pk	AF6-6106-52	500/pk
Phenex-GF/PVDF (Glass Fiber/Polyvinylidene Fluoride)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a PVDF membrane. The hydrophilic PVDF membrane provides high flow rates and throughput, low extractables and broad chemical compatibility. This membrane binds less protein than nylon or PTFE membranes.				AF6-6D06-12	100/pk
					AF6-6D06-52	500/pk
Phenex-GF/CA ^{2,3,4} (Glass Fiber/Cellulose Acetate)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a CA membrane. Excellent for filtration of tissue culture media, general biological sample filtration and clarification. Outlet connection is luer lock.				AF0-8B09-12 ⁷	100/pk
					AF0-8B09-52 ⁷	500/pk
1.20 µm						
Phenex-GF ^{2,3} (Glass Fiber)	Prefiltration of heavily contaminated or highly viscous samples. When used in-line preceding a membrane filter, clogging of the membrane filter is prevented and sample clean up is optimized. Outlet connection is luer lock.				AF0-8515-12 ⁷	100/pk
					AF0-8515-52 ⁷	500/pk

Above syringe filters are non-sterile. Housing is made of medical-grade polypropylene (PP). Luer lock inlet/slip outlet connections unless otherwise indicated.

- Larger quantity purchases at significant savings are available.
- Glass fiber filters are 28 mm diameter and made of borosilicate. They will remove 90% of all particles > 1.2 µm.
- Housing material is methacrylate butadiene styrene (MBS) polymerisate. Also known as Cyrolite®.
- Cellulose acetate is surfactant-free.
- 26 mm diameter.
- Hydrophobic membrane. Can be made hydrophilic by pre-wetting with IPA.
- 28 mm diameter.
- 17 mm diameter
- Additional dimensions and membrane types are available, including sterile filters. Please contact your local Phenomenex technical consultant or distributor for availability or assistance.

Part No.	Description	Capacity (mL)*	Unit
AS0-8408	Plastic Disposable Syringes, Luer-lock	3	100/pk
AS0-8409	Plastic Disposable Syringes, Luer-lock	5	100/pk
AS0-8410	Plastic Disposable Syringes, Luer-lock	10	100/pk
AS0-8411	Plastic Disposable Syringes, Luer-lock	20	100/pk

* Choose larger volume syringe to reduce force on syringe filter membrane. 10 mL or larger syringe is recommended.

BE-HAPPY™
GUARANTEE

Your happiness is our mission. Take 45 days to try our products. If you are not happy, we'll make it right.

www.phenomenex.com/behappy

SEPARATING DRUGS AND METABOLITES

HPLC • UHPLC • PREP LC • SAMPLE PREP

Australia

t: +61 (0)2-9428-6444
auiinfo@phenomenex.com

Austria

t: +43 (0)1-319-1301
anfrage@phenomenex.com

Belgium

t: +32 (0)2 503 4015 (French)
t: +32 (0)2 511 8666 (Dutch)
beinfo@phenomenex.com

Canada

t: +1 (800) 543-3681
info@phenomenex.com

China

t: +86 400-606-8099
cninfo@phenomenex.com

Czech Republic

t: +420 272 017 077
cz-info@phenomenex.com

Denmark

t: +45 4824 8048
nordicinfo@phenomenex.com

Finland

t: +358 (0)9 4789 0063
nordicinfo@phenomenex.com

France

t: +33 (0)1 30 09 21 10
franceinfo@phenomenex.com

Germany

t: +49 (0)6021-58830-0
anfrage@phenomenex.com

Hong Kong

t: +852 6012 8162
hkinfo@phenomenex.com

India

t: +91 (0)40-3012 2400
indiainfo@phenomenex.com

Indonesia

t: +62 21 5010 9707
indoinfo@phenomenex.com

Ireland

t: +353 (0)1 247 5405
eireinfo@phenomenex.com

Italy

t: +39 051 6327511
italiainfo@phenomenex.com

Japan

t: +81 (0) 120-149-262
jpinfo@phenomenex.com

Luxembourg

t: +31 (0)30-2418700
nlinfo@phenomenex.com

Mexico

t: 01-800-844-5226
tecnicomx@phenomenex.com

The Netherlands

t: +31 (0)30-2418700
nlinfo@phenomenex.com

New Zealand

t: +64 (0)9-4780951
nzinfo@phenomenex.com

Norway

t: +47 810 02 005
nordicinfo@phenomenex.com

Poland

t: +48 22 104 21 72
pl-info@phenomenex.com

Portugal

t: +351 221 450 488
ptinfo@phenomenex.com

Singapore

t: +65 800-852-3944
sginfo@phenomenex.com

Slovakia

t: +420 272 017 077
sk-info@phenomenex.com

Spain

t: +34 91-413-8613
espinfo@phenomenex.com

Sweden

t: +46 (0)8 611 6950
nordicinfo@phenomenex.com

Switzerland

t: +41 (0)61 692 20 20
swissinfo@phenomenex.com

Taiwan

t: +886 (0) 0801-49-1246
twinfo@phenomenex.com

Thailand

t: +66 (0) 2 566 0287
thaiinfo@phenomenex.com

United Kingdom

t: +44 (0)1625-501367
ukinfo@phenomenex.com

USA

t: +1 (310) 212-0555
www.phenomenex.com/chat

☎ All other countries/regions Corporate Office USA

t: +1 (310) 212-0555
info@phenomenex.com



www.phenomenex.com

Phenomenex products are available worldwide. For the distributor in your country/region, contact Phenomenex USA, International Department at international@phenomenex.com

Terms and Conditions

Subject to Phenomenex Standard Terms & Conditions, which may be viewed at www.phenomenex.com/TermsAndConditions.

Trademarks

Luna, Kinetex, Strata, BE-HAPPY, MercuryMS, MidBore, Novum, Phenex, Phree, SecurityCAP, Presston, Solvent Shield Technology, and SecurityGuard are trademarks of Phenomenex. Waters and Oasis are registered trademarks of Waters Corporation. AIT is a registered trademark of AIT France. Canary-Safe is a trademark of Analytical Sales and Services. S.C.A.T. is a registered trademark of S.C.A.T. Europe GmbH. Viton and Teflon are registered trademarks of The Chemours Company FC, LLC. VICI Jour is a registered trademark of Valco Instruments Co., L.P. Agilent is a registered trademark of Agilent Technologies, Inc. DURAN is a registered trademark of DWK Life Sciences GmbH. Parafilm is a registered trademark of Beamis Company, Inc.

Disclaimer

Comparative separations may not be representative of all applications. Phenomenex is in no way affiliated with the above companies.

Kinetex EVO is patented by Phenomenex. U.S. Patent Nos. 7,563,367 and 8,658,038 and foreign counterparts.

Novum is patent pending.

Strata-X is patented by Phenomenex. U.S. Patent No. 7,119,145.

SecurityGuard is patented by Phenomenex. U.S. Patent No. 6,162,362.

CAUTION: this patent only applies to the analytical-sized guard cartridge holder, and does not apply to SemiPrep, PREP or ULTRA holders, or to any cartridges.

The opinions stated herein are solely those of the speaker and not necessarily those of any company or organization.

FOR RESEARCH USE ONLY. Not for use in clinical diagnostic procedures.

© 2023 Phenomenex, Inc. All rights reserved.